AUTHOR INDEX

VOLUME 55

Aaron, Debra K., 2287
Abad, André R., 1457, 2293
Abbas, Ala, 2030
Abbas, Hamed K., 254, 1315
Abul-Hajj, Yusuf J., 3140
Adams, J. C., 29, 33
Adcock, Phillip, 2138
Adebayo, A., 2407
Adhi, Tri P., 1165
Adkins, C. R., 86
Adriaens, P., 887
Ahlström, Britta, 2681
Ahonen, Lasse, 312
Ahring, Birgitte K., 514, 1262, 2257
Aida, Tokujiro, 2569, 3202
Aislabie, Jackie, 3247
Akin, D. E., 611, 1066
Akino, Toshiro, 3178
Alaña, Aitor, 1612
Albertini, A. M., 446
Alexander, David B., 1748
Alexander, M. A., 2152
Alexander, Martin, 2843
Alfano, Edith M., 511
Alic, Margaret, 406
Allen, Martin J., 1003
Allenmark, Stig, 2681
Allison, Clive, 672, 2894, 2899
Allison, D. G., 1308
Allpress, James D., 1258
Alterthum, Flavio, 1312, 1943
Amador, José A., 2843
Amako, Kazunobu, 2726
Ames-Gottfred, N. P., 707, 1599
Amner, Wendy, 2669
Amy, Penny S., 788, 1690
An, Gil-Hwan, 116
Andersen, Kari, 819, 826
Anderson, A. J., 2985
Anderson, Karen L., 264
Anderson, S. M., 1317
Ando, Yoshiji, 2172
Andreesen, Jan Remmer, 1829
Andrews, John H., 2326
Angle, J. Scott, 1730, 2101
Angsuthanasombat, Chanan, 2428
Annadotter, Heléne, 2861
Ansari, Shamim A., 3113
Anzil, Adriana, 2732
Aoyama, Kenji, 1653
Arad, Shoshana (Malis), 2990
Araki, Michio, 645
Archer, David B., 440
Aristoy, M. C., 3173
Armbrust, E. V., 425
Armstrong, John L., 2200
Arredondo, Renato, 2025
Arunakumari, Alahari, 2924
Arvin, Erik, 3221
Asher, Rodney A., 1016
Atlan, Danièle, 1717
Atlas, Ronald M., 3247
Audet, Pascal, 185
Audicana, Ana, 3032
Auling, Georg, 1578
Averill, Bruce A., 2924
Axelrood, Paige E., 934
Aziz, K. M. S., 2073
Bacon, C. W., 2745
Bae, Kwang-Sung, 2511
Baecker, A. A. W., 1178
Baer, Shirley H., 2729
Bailey, G. W., 2976, 3143
Baldwin, Kathleen A., 2702
Bales, Roger C., 2061
Balkwill, D. L., 1058
Ball, A. S., 1642
Ballantine, D. L., 137
Bancroft, Keith, 507
Banerjee, Maitreyee, 1169
Barbosa, Maria de F. S., 2877
Barbotin, Jean-Noël, 2377
Barbour, W. Mark, 813
Barc, M. C., 1911
Barcina, Isabel, 246
Bardales, A. T., 137
Bardinelli, T. R., 2793
Bär-Gilissen, Marie-José B., 1787
Barkay, Tamar, 1196, 1574
Barlaz, M. A., 50, 55
Barnes, Richard, 1504
Barnick, J., 912
Barraquio, Wilfredo L., 3197
Bartha, R., 269
Barton, Larry L., 2511
Bartos, Stanislav, 1570
Bartsch, Klaus, 711
Bastien, C., 3124
Bates, D. B., 259
Bates, Elizabeth E. M., 2095
Battersby, Nigel S., 433
Battut, G., 2939
Bauchop, Tom, 1630
Baumann, Linda, 252
Baumann, Paul, 252
Bazylinski, Dennis A., 1023, 2832
Beattie, Gwyn A., 2755
Beaty, P. Shawn, 977
Beaulieu, John B., 298
Bécard, G., 2320
Beede, D. K., 259
Beeton, Steven, 190
Beguin, P., 203, 207
Beliveau, Constance M., 1490
Belliveau, Brian H., 1649
Bencivengo, Marianne M., 599
Bengtsson, Göran, 2861
Bennett, George N., 970
Benno, Yoshimi, 1100
Bentjen, S. A., 198
Bentvelsen, Michaël M. A., 219
Beppu, Teruhiko, 171
Beremand, Marian N., 1500, 2190, 2195
Berg, Gerald, 390
Berg, Robert K., 617
Berlier, Y. M., 2123
Bernardet, Jean-François, 1796
Berrang, M. E., 2167
Berthelet, Marc, 1754
Bérubé, Alain, 1640
Betts, W. B., 1642
Beuchat, Larry R., 1645, 2167, 3012
Beveridge, T. J., 1249, 2976, 3143
Bezdicek, D. F., 109
Bhargava, Pushpa M., 767
Bhat, R. V., 2619
Bhatti, Abdul R., 1301
Bhowmik, Tarun, 3240
Bifulco, Joseph M., 2214
Billingsley, Jean W., 1291
Bilous, Doris, 568, 1192
Bisaria, V. S., 1044
Bisset, Jacqueline, 1230
Bisson, Linda F., 159
Bissonnette, Gary K., 1298, 2214
Bjørnsen, Peter Koefoed, 1512
Blake, C. K., 2648
Blanchette, Robert A., 1457, 2293
Blanco, José L., 1447
Blannon, J. C., 912
Blaschek, Hans P., 360, 2729
Bloem, Jaap, 1787
Blondeau, Roland, 1282
Bloom, Raanan A., 2155, 2161
Bock, E., 2108
Bohanon, Michael J., 2702
Bokkenheuser, Victor D., 1203
Bollag, Jean-Marc, 66, 733
Bongiovanni, Joelle, 2017
Bonnemoy, F., 2360
Boone, David R., 994, 1735
Boos, Winfried, 2414
Boquien, C. Y., 2308
Borneman, William S., 1066
Bothast, R. J., 649
Bottomley, Peter J., 959, 2431
Botzenhart, Konrad, 2949
Boudart, Georges, 1555
Bourlioux, P., 1911
Bowen, G. D., 1711
Bowen, J. D., 425
Boyle, John A., 3253
Brackett, R. E., 1645, 2167
Brand, Bettina, 2414
Brandt, Floy H., 1144
Brawner, Diane L., 2965
Breittmayer, Violette A., 2017
Bressler, W. R., 29, 33
Brewer, D., 1320
Brill, Janine, 335
Britz, Trevor J., 1617
Brockman, F. J., 109, 1029
Brokke, Peter, 2806
Bronnenmeier, Karin, 2653
Brookes, Allan, 1279
Brown, M. R. W., 1308
Brown, Philip R., 2635
Brown, S. H., 2086
Brulla, W. J., 1289
Brusseau, Gregory A., 2960, 3155
Bryant, Dennis L., 2729
Bryant, M. P., 927, 1289
Brynhildsen, Lena, 1375
Buchanan, Robert L., 599
Bull, Alan T., 190
Bumpus, John A., 154
Bunning, V. Kelly, 1490
Bunster, Lillian, 1340
Burand, J. P., 2749
Burgstaller, Wolfgang, 1153
Burlage, Robert S., 1323
Buschhorn, Heike, 1835
Busscher, Henk J., 2806
Busse, Hans-Jürgen, 1578
Busse, Matt D., 2431
Bussey, Howard, 2105
Butine, Tala J., 1112
Buttner, Mark P., 1690
Cabelli, Victor J., 543
Cairns, John, Jr., 1477
Caldwell, B. A., 1860
Calogero, S., 446
Cammue, Bruno, 2056
Campbell, Elsie Lin, 125
Campbell, Warren L., 2275
Cannon, Robert E., 1317, 2448
Cappenberg, Thomas E., 1787
Carlisle, Glenn E., 3026
Carlson, Ken, 1279
Carmichael, Robert D., 17
Carmichael, W. W., 1928, 1990
Carney, Brian F., 1037, 1523
Carson, Johnny L., 511
Casida, L. E., Jr., 1857
Cassiday, P. K., 1645
Castenholz, Richard W., 261
Causey, Stuart C., 2302
Cavin, J. F., 751
Cazares, Lisa H., 1823
Cazin, John, Jr., 1346
Cease, Kory R., 2293
Cerniglia, Carl E., 1968, 2275
Chai, Tuu-jyi, 1877
Chakraborty, Trinad, 902
Champagne, Claude P., 2488
Chand, Tara, 2326
Chandhoke, Vikas, 2720
Chaney, R. L., 2101
Chang, George W., 335
Chapatwala, Kirit D., 2267
Chapman, Mary A., 1916
Chapman, Peter J., 1624, 3085
Chapman, T. W., 2152
Chaudhry, G. Rasul, 1301
Chauvet, Eric, 922
Chen, Guangjiong, 1052, 2658
Chevalier, J., 2944
Childers, Gary W., 507
Chisholm, S. W., 425
Cho, Ki-Woong, 2601
Choi, Joon W., 1761
Chopin, Alain, 1769
Chopin, Marie-Christine, 1769
Chourasia, H. K., 531
Chow, Edward, 2779
Chowdhury, M. A. R., 2073
Christensen, Daniel H., 3184
Christensen, Peter Bondo, 1234
Christianson, Gerald G., 106
Christiansson, Anders, 2595
Christie, B. R., 707, 1599
Chu, Fun S., 1928
Chung, King-Thom, 1329
Ciafardini, Gino, 1273
Clark, Sandra W., 970

Clarkson, William W., 240
Clayton, Murray K., 2755
Clem, T. R., 1305
Clippe, André, 984
Cohen, Ephraim, 2990
Colburn, Karen G., 3072
Cole, Eugene C., 511
Cole, Larry, 1223
Colepicolo, Pio, 2601
Collette, Timothy W., 2545
Collins, Anthony G., 240
Collins, John K., 1386
Colwell, Frederick S., 2420
Colwell, Rita R., 548
Connell, J. P., 33
Conway de Macario, Everly, 1996
Cook, Alasdair M., 492
Cooper, David G., 584
Cormier, Michel, 1040, 2424
Covert, Terry C., 2443
Cowan, Marjorie M., 2827
Cowen, James P., 764
Coyne, Mark S., 2924
Crang, Richard E., 573
Crasnier, Philippe, 2474
Crawford, Don L., 1165
Crawford, Ronald G., 1490
Crawford, Ronald L., 866, 2113
Creech, Gregory W., 1808
Creekmore, R. William, 1220
Cregan, P. B., 2532
Crémieux, A., 2944
Crissman, John W., 2302
Crombez, Dominique, 2056
Crouse, John D., 1329
Cruden, Diana L., 264, 1414
Cseh, Tibor, 3150
Culbertson, Charles W., 2333
Cunliffe, David A., 2138
Cunningham, H. W., 1963
Curry, Janis I., 1504
Cuskey, Stephen M., 1624

Daae, Frida Lise, 819, 826
Dahlem, A. M., 1990
Dahling, Daniel R., 503
Daly, Charles, 2410
Daniel, Geoffrey, 871
Daniel, Steven L., 1078
Dankert, Jacob, 2806
Danso, S. K. A., 1711
Dasgupta, C., 2403
Dashkevicz, Michael P., 11, 1848
Datta-Roy, K., 2403
Dave, Prafulla J., 465
David, Andrew W., 1823, 1865
David, Silke, 1483
Davis, C. L., 1267
Davis, Lawrence C., 354
Davis, Norman D., 1808
Dawson, Karl A., 2287
Dawson, S., 2141
Day, Donal F., 2079
Dean, Roger G., 3035
Dean-Ross, Deborah, 2002
Debacker, Emile, 1519
de Beer, Dirk, 754
Debette, Jacqueline, 233
de Bont, J. A. M., 2850
DeCicco, B. T., 3231
DeFlaun, Mary F., 1823
Dehority, Burk A., 148, 1766, 2247, 2789, 3237
Deinema, Maria H., 219
de la Fuente, G., 1660
De la Rosa, Miguel A., 483
Del Corral, Fernando, 599
De Leenheer, A. P., 2505, 3065
de Leeuw, Olav, 1949
Delorme, Evelyne, 2242
Denham, S. C., 259
Denholm, Anna M., 212
Denovan, B. A., 1029
Deobagkar, D. N., 2675
deRegnier, Daniel P., 1223
Derrien, A., 2424
Des Jardin, Elizabeth, 747
de Vos, Willem M., 1483
Dhaese, Patrick, 2130
Dhanoa, Mewa S., 1363
Dickman, D. G., 29, 33
Dickson, James S., 832, 1329
Dilworth, Michael J., 1870
Ditner, Sandra A., 529
Divies, C., 751
Dockendorff, Thomas C., 1286
Dodds, Karen L., 656
Dodds, Walter K., 882
Does, Amy L., 159
Doi, Yoshiharu, 2932
Dombek, K. M., 1312
Dominguez, Juan B., 1612
Domínguez, Lucas, 1447
Donaldson, K., 3124
Donnelly, Catherine W., 1490
Doré, J., 927
Dougherty, E. M., 1049
Dowell, V. R., Jr., 1203
Doyle, Michael P., 1565, 2226
Doyon, Gilles, 2488
Drake, Harold L., 1078
Dufrenne, John, 902
Dughri, Muktar H., 959
Duine, J. A., 1209
Dungan, Christopher F., 1128
Dunn, Michael F., 579
Dunn, Paul H., 412
Durall, Daniel M., 412
Dürre, Peter, 1835
Dutkiewicz, Jacek, 1093

Edberg, Stephen C., 380, 1003
Edebo, Lars, 2681
Edebo, Margareta, 2681
Edelman, Alex, 2739
Edenharder, Rudolf, 1656
Edwards, Clive, 2030, 2669
Egea, L., 246
Eggeling, Lothar, 684
Eggink, Gerrit, 1949
Eirich, L. Dudley, 856
El-Banna, Tarek, 1578
Elkan, Gerald H., 813
Elkinton, J. S., 2749
Ellenbroek, Frank M., 1787
Elliott, Laura M., 1504
Ellis, Jayne E., 2583
Els, H. J., 1178
Elston, Ralph A., 1128
Emerich, David W., 165
Endo, Kimiko, 1100
Enger, Øivind, 2815
Eriksson, Karl-Erik, 2391
Erlandsen, Stanley L., 1223
Evans, D. J., 1308
Evans, Frederick E., 2275
Evers, David P., 2592
Ewers, Jens, 2904
Eyles, Michael J., 3012
Eyman, Craig M., 2592
Eyssen, H., 2954

Falcón, M. A., 1660
Falkinham, Joseph O., III, 3026
Falsen, Enevold, 2681
Faming, Dong, 2726
Farrell, R. L., 1457
Fass, R., 1305
Fateley, W. G., 354
Fauque, G., 2123
Faust, U., 1801
Federle, Thomas W., 2092
Feighner, Scott D., 11, 1848
Feijen, Jan, 2806
Fekete, Frank A., 298, 2720
Fenn, Mark E., 412
Ferber, Donna M., 2550
Fernández-Castillo, R., 2385
Ferris, F. G., 1249, 2976, 3143
Fett, William F., 579
Fiksdal, L., 2424
Filner, Philip, 1279
Findlay, Robert H., 2888
Finer, K. R., 1684
Finstein, M. S., 1082
Fischer, M., 852
Fiset, Gisèle, 2453
Fisher, William S., 2882
Flamm, Robert K., 2251
Flehmig, Bertram, 2949
Flemming, C. A., 2976, 3143
Fletcher, Madilyn, 2827
Fleurette, J., 2944
Fliegrova, Katerina, 1570
Fliermans, C. B., 722
Flint, Harry J., 1230
Flors, A., 3173
Focht, Dennis D., 887, 946, 1037
Fogher, C., 446
Foght, Julia M., 36
Fogleman, James C., 100
Fokkema, Nyckle J., 1340
Folt, Carol L., 78
Fonty, G., 2360
Forde, Kenneth A., 1026
Forney, Larry J., 2550, 2556
Forng, E. R., 1317
Forsberg, Cecil W., 132, 3039
Foster, D. H., 33
Foster, Joan L. M., 100
Frankenberger, W. T., Jr., 1406
Franzluebbers, Alan J., 617
Fredrickson, J. K., 198, 1029, 1058
Freedman, David L., 2144
Freeman, Christopher, 529
Freeman, James P., 2275
Freier-Schröder, Doris, 2904
Freyberg, Ronald W., 2443
Freyer, Alan J., 66
Fry, John C., 2627
Fu, Changlin, 2315
Fuchs, Radovan, 2856
Fujino, Tsuchiyoshi, 2399
Fukaya, Masahiro, 171
Fulthorpe, Roberta R., 1584
Fustec, Eliane, 922
Fyfe, W. S., 1249

Gabilondo, Ane, 1612
Galizzi, A., 446
Galleron, Nathalie, 1769
Gälli, René, 837, 845
García, María José, 539
Garcia, Minviluz, 454
Gardner, Nancy, 2488
Gas, Gilbert, 922
Gauthier, Michel J., 2017
Geis, Arnold, 1187
Geldreich, Edwin E., 907, 912
Gélinas, Pierre, 2453
Gellin, Gloria, 2287
Genthner, Barbara R. Sharak, 1466, 1472
Gerba, Charles P., 2061, 3045, 3189
Gerencser, Vincent F., 1093
Gervais, P., 2939
Gest, Howard, 639
Ghose, A. C., 2403
Ghose, T. K., 1044
Ghoul, Mostefa, 1040
Gibbs, Bernard F., 3016
Gibson, David T., 2648, 3162
Gibson, Stewart A. W., 679
Gilbert, Harry J., 2095
Gilbert, P., 1308
Gilkes, N. R., 2480
Gill, Sarjeet S., 2779
Gilliatt, E., 2141
Gillman, Mark, 1196, 1574
Girard, H., 203, 207
Glass, Kathleen A., 1565, 2226
Glenn, Andrew R., 1870
Gober, James W., 1420
Gokce, Noyan, 1023
Gokhale, D. V., 2675
Goksøyr, Jostein, 2815
Gold, Michael H., 406
Golden, David A., 3012
Gomez-Lucía, Esperanza, 1447
Gong, Jianhua, 132, 3039
González, Juan M., 246
González-Candelas, L., 3173
Goodchild, David J., 2046
Gordin, Hillel, 2990
Gordon, Geoffrey L. R., 1695, 1703
Gorris, María Teresa, 741
Goss, Thomas J., 1870
Gossett, James M., 2144
Gottschalk, Gerhard, 1835
Gould, W. D., 2793
Goulet, Jacques, 2453
Govindarajan, Priya, 465
Goyache, Joaquín, 1447
Graham, Peter H., 2493
Grenet, E., 2360
Grethlein, Hans E., 3131
Griffiths, R. P., 1860
Grifo, A. P., Jr., 2789
Gripon, J.-C., 2308

Grondin, Gerald H., 2061
Grosse, Hans-Helmut, 1009
Guerrero, Miguel G., 758
Guillem, Jose G., 1026
Guinee, Piet, 902
Gumpert, Johannes, 1009
Gundersen, Anders Torp, 3221
Gurujeyalakshmi, G., 500
Gutnick, David L., 36

Haas, Charles N., 1934
Hadobas, P. A., 1242
Hagedorn, C., 2793
Häggblom, Max M., 516
Hagström, Åke, 1400, 1907
Hahn-Hägerdal, Bärbel, 1549, 1974
Haigler, Billy E., 372
Haines, John R., 2443
Hald, Benedicte, 3184
Hallberg, Kevin B., 2717
Ham, R. K., 50, 55
Hamasaki, Takashi, 2172
Hamilton, John T. G., 1981
Handelsman, Jo, 2755
Handley, P. S., 1308
Hansen, Geir Høvik, 1435
Hansen, T. A., 965
Hanson, Richard S., 2960, 3124, 3155
Harada, Ken-Ichi, 3202
Hardarson, G., 1711
Harding, Ethelynda E., 3058
Hardman, John K., 1106
Harlander, Susan K., 604, 2344, 2621
Harlou, Bjørn, 3184
Harper, David B., 1981
Harris, Robin F., 2326
Hartel, Peter G., 1291, 3243
Hartig, Phillip C., 1916
Hartman, Paul A., 229
Hartman, Philip E., 7
Hartmans, S., 2850
Hashiba, Honoo, 1653
Hashimoto, Hideo, 559, 1591, 2613
Hashimoto, Junji, 2172
Hastings, J. Woodland, 2601
Hatch, George G., 1916
Hattingh, M. J., 533
Hawari, Jalal, 3150
Hay, Sally, 679
Hayema, Bert Jan, 1187
Hayes, J. M., 639
Hayes, Roger N., 298
Hazen, Terry C., 495, 722
Hazlewood, Geoffrey P., 2095
Heap, Howard A., 1537
Heatherbell, D. A., 2010
Heijthuijsen, J. H. F. G., 965
Heisick, Judy E., 1925
Heitkamp, Michael A., 1968
Henick-Kling, T., 2010
Hensley, V., 137
Henson, Joan M., 284
Herbold, Karen, 2949
Hernando, Fernando, 1612
Herwig, Russell P., 1033
Hespell, Robert B., 306, 893, 2089
Heuvelman, Kees J., 902
Hiatt, Hermi D., 788
Hicks, R. J., 1029
Higson, Frank K., 946
Hill, Colin, 1684, 2416
Hinkel, Ilme, 2068
Hinrichs, David J., 2251
Hinton, D. M., 2745
Hiraishi, Akira, 897
Hirano, Susan S., 623
Ho, Christopher, 1147
Hodson, Robert E., 2178
Hoekstra, Wiel, 3250
Hoff, Kjell Arne, 819, 826, 1775
Hofstra, Harm, 3250
Hogan, J. A., 1082
Hohn, Thomas M., 1500
Hoitink, H. A. J., 1368
Holben, William E., 3022
Hollibaugh, James T., 2333
Hollocher, Thomas C., 1023
Holo, Helge, 3119
Holt, Scott M., 229
Hooper, Scott W., 1286, 1323
Horikoshi, Koki, 3178
Horng, Jason S., 2561
Horsted, Steen Jesper, 1512
Householder, Steven R., 2723, 2960
Howard, Jerome J., 1346
Howmiller, Richard P., 78
Hsu, Tsungda, 1078
Hsu, Wen Hwei, 3167
Huang, Xuan, 1928
Huckle, James, 2095
Hudman, J. Frank, 1630
Hughey, Virginia L., 631
Huis in't Veld, Jos, 3250
Huisman, Gjalt W., 1949
Hult, Karl, 2856
Hurlbert, Iris M., 806
Hurlbert, Ronald E., 806, 1136
Husevåg, Bente, 2815
Hutcheson, Steven W., 1724

Ibrahim, Abdel-Rahim, 3140
Idziak, Edmund S., 1531
Imanaka, Tadayuki, 3208
Ingledew, W. M., 1560
Ingram, L. O., 306, 1312, 1943
Irgens, Roar L., 1033
Iriberri, Juan, 246
Irie, Yasuo, 419
Ironside, K., 722
Ishii, Satoshi, 1653
Ivins, Bruce E., 2098
Iwahara, Shojiro, 3107

Jackson, Mark A., 649
Jain, M. K., 366
James, Allen P., 2871, 2877
Jamot, J., 2360
Janke, Dieter, 516
Jannasch, Holger W., 1023, 2832, 2909
Jansen, Wim, 902
Janssen, Dick B., 2819
Janssen, G., 2954
Jansson, Janet K., 3022
Jarroll, Edward L., 2592
Jarvis, Audrey W., 1537
Jarvis, B. D. W., 1426
Jarvis, Bruce B., 254
Jawson, Michael D., 617
Jeffrey, Wade H., 1823
Jeffries, T. W., 2152
Jelley, Scott A., 294
Jellison, Jody, 2720
Jenkins, Michael B., 3058
Jenneman, Gary E., 2280
Jenq, Wheamei, 573
Jensen, Bjørn K., 3221
Jensen, Stephen L., 2061
Jerez, Carlos A., 2025
Ji, Guangyong, 523
Jochimsen, Kenneth N., 2635
Jofre, J., 2696
Johnson, Eric A., 116, 631, 1544, 2579
Johnson, Michael G., 2802
Johnson, Richard L., 1735
Johnson, Russell C., 1921
Joliff, Gwennael, 2739
Jonas, Robert B., 43
Jones, J. Gwynfryn, 771, 2537
Jones, Susan E., 529
Joos, Henk, 2130
Joosten, H. M. L. J., 2356
Jordan, D. C., 707
Jørgensen, Kirsten Schannong, 1841
Joset, Françoise, 1452
Juhnke, M. Elliott, 747

Kalff, Jacob, 1214
Kamei, Toshio, 1351
Kamimura, Kazuo, 645
Kanagawa, Takahiro, 555
Karlson, U., 1406
Karns, Jeffrey S., 289
Kashket, Eva R., 1420
Kaspar, Charles W., 229
Kato, Chiaki, 3178
Kato, Nobuo, 275, 478
Katsuta, Yumiko, 1351
Katsuwon, J., 2985
Kawaguchi, Yasushi, 2932
Kawakami, Hideyuki, 2613
Kawamura, Yoshiya, 171
Kawanishi, Clinton Y., 1916
Kaysner, Charles A., 3072
Keating, S. T., 2749
Keeven, James K., 3231
Keister, Donald L., 1852
Kelly, Martin P., 2717
Kelly, R. M., 2086
Kennedy, James T., 1981
Kerouault, Brigitte, 1796
Keyser, H. H., 2532
Khadikar, P. V., 1955
Khan, A., 798
Khandekar, Sanjay S., 856
Kiene, Ronald P., 994
Kiiyukia, Ciira, 2613
Kilburn, D. G., 2480
Killham, Kenneth, 1635
Kim, Augustine Y., 360
Kim, Choong-Hyun, 1852
Kim, Jaeyoung, 1638
Kim, Jinwon, 2349
King, Gary M., 2888
Kirchhoff, H., 852
Kirkpatrick, Neil, 1147
Kirschner, L. M., 1178
Kitamura, Hiroshi, 897
Kiviranta, J., 1990
Klaenhammer, Todd R., 1684, 2206, 2416
Kleeman, E. G., 2206
Klein, Shoshana, 3229
Klessen, Christian, 1009
Klier, Andre, 2739
Klieve, Athol V., 1630
Klotz, Stephen A., 2119
Knackmuss, Hans-Joachim, 2904
Knight, Deborah, 385
Knight, Ivor T., 548
Knosp, Olga, 1334
Knowles, Roger, 2315, 3197
Knudsen, Guy R., 2641
Kobayashi, Katsunori, 419
Koenig, David W., 2079
Koenig, Kerstin, 1829
Kohashi, Osamu, 2726
Kohler, H.-P. E., 887
Kohler-Staub, D., 887
Kohring, Gert-Wieland, 348, 2735
Kok, Jan, 224, 394, 1187
Kommedahl, Thor, 254
Komori, Kohya, 1665
Komori, Toyosuke, 1100
Konings, Wil N., 3101
Konisky, Jordan, 1295
Kononen, K., 1990
Konopka, Allan, 385
Koohmaraie, Mohammad, 832
Kopecky, Karl, 2607
Kornegay, Janet R., 406
Körner, Heinz, 1670
Korus, Roger A., 1165
Krebs, B., 852
Krecek, R. C., 1178
Krieg, E., 2108
Kröckel, Lothar, 1037
Krogh, Palle, 3184
Kroll, Rohan G., 778
Kubicek, C. P., 2877
Kuhn, Elmar P., 590
Kuiper, Arthur, 3214
Kunioka, Masao, 2932
Kunz, Daniel A., 256

Laan, Harry, 3101
Lacroix, Christophe, 185
Lacy, George H., 1477
Ladha, J. K., 454, 2407
Laird, Gwen A., 106
Laloi, Patrick, 1717
Land, Carl Johan, 2856
Landeen, Lee K., 3045, 3189
Langlois, Bruce E., 2287
Lanzi, Richard A., 298
Larsen, Charles, 3184
Laurie, Judith I., 2095
Law, Ian J., 3000
Leary, John V., 1037, 1523
Leathers, Timothy D., 1457, 2293
Lechevalier, Mary P., 2161
LeChevallier, M. W., 3226
LeDuy, Anh, 2453
Lee, Hung, 2877
Lee, Robert G., 639
Lee, S. H. S., 2141
Leedle, Jane A. Z., 1112
Leenhouts, Kees J., 394

LeGall, J., 2123
Leimeister-Wächter, Michaela, 902
Leisinger, Thomas, 492
Lemke, Paul A., 1808
Leonard, Thomas J., 3095
Lepo, Joe Eugene, 666
Lespinat, P. A., 2123
Lewis, Carrie M., 3091
Li, S. W., 198
Liang, Sun, 2230
Liao, Ching-Hsing, 1677
Liaw, Hungming J., 2220
Liebert, Cynthia, 1196, 1574
Lighthart, Bruce, 2349
Lim, Woon Ki, 1106
Limsowtin, Gaetan K.Y., 1537
Lin, J., 751
Lin, Long Liu, 3167
Linder, Katherine, 2837
Lindström, E. Börje, 3020
Ling, John R., 212
Lingens, Franz, 2499
Linkfield, Timothy G., 2773
Lin-Vien, Daimay, 354
Linz, John E., 2561
Liu, Ruilong, 1895
Liu, Shu-Yen, 66, 733
Liu, Yitai, 1735
Lizama, Hector M., 1117, 2588, 2918
Ljungdahl, Lars G., 1066
Llama, Maria J., 1612
Lloyd, David, 2583
Lo, Reggie Y. C., 132
Locher, Hans H., 492
Lochner, Hester H., 3000
Lock, Maurice A., 529
Loeb, George I., 2827
LoGerfo, Paul, 1026
Lohmeier-Vogel, Elke, 1974
Lohrke, Scott, 806
Lonergan, Debra J., 700
Longcope, David C., 298
Longin, R., 203
Longland, Annette C., 1363
López, María M., 741
Losada, Manuel, 758
Lovley, Derek R., 700, 3234
Lovrien, Rex E., 2293
Low, C., 1368
Lowe, Susan E., 1363
Lucena, F., 2696
Luchansky, J. B., 2206
Lücke, Friedrich-Karl, 1901
Lum, Rosalind, 335
Lundström, Hans, 2856
Lynd, Lee Rybeck, 3131
Lynn, D. E., 1049
Lyon, C. E., 611
Lytle, M. S., 29, 33

Maas, Henny, 902
Maas, M. R., 2226
Mabbott, Gary A., 298
Macario, Alberto J. L., 1996
Macfarlane, George T., 672, 679, 2894, 2899
Machlin, S., 3124
MacKenzie, C. Roger, 568, 1192
Mackenzie, Kylie F., 306
Mackie, R. I., 1178
MacLeod, Robert A., 1754
Maczulak, Anne E., 2468
Madigan, Michael T., 639
Maest, Ann S., 2333
Mah, Robert A., 514, 1262, 2257
Mahillon, Jacques, 2130
Mahmourides, G., 2871
Mahoney, David F., 1507
Mahony, D. E., 2141
Maier, Robert J., 1157, 3051
Mak, Jeannie L., 3091
Maleszka, R., 2871
Malet-Martino, Marie C., 2474
Malke, Horst, 1009
Mallonee, Darrell H., 2517
Mann, Stephen P., 2095
Mansvelt, E. Lucienne, 533
Maoyu, Yang, 2082
Mara, D. D., 401
Marijanović, D. R., 2745
Markovetz, A. J., 264, 1414
Marks, Trevor S., 1258
Marotta, Bruna, 1273
Marounek, Milan, 1570
Márquez, M. C., 2385
Marshall, Pamela A., 2827
Marth, Elmer H., 3240
Martin, Phyllis A. W., 2437
Martin, Scott A., 3035
Martino, Robert, 2474
Marzari, R., 446
Masamune, Kiyoshi, 897
Masschelein, Willy J., 1519
Mathrani, Indra, 994
Matsuda, Haruo, 2613
Matsuda, Osamu, 559
Matsuura, Kenji, 3202
Mattsby-Baltzer, Inger, 2681
Matumaru, Katsumi, 2569
Maule, Andrew, 1258
May, John J., 1093
Mazás, Elvira Ares, 1519
McCarthy, Alan J., 1642, 2669
McCarty, Perry L., 837, 845
McClintock, J. T., 1049
McClure, Nicholas C., 2627
McCormick, Susan P., 2195
McDermott, Timothy R., 2493
McFarlan, Clair, 672, 679
McFeters, G. A., 3226
McGuire, Michael J., 2230
McInerney, Michael J., 977, 2280
McIntyre, Deborah A., 604, 2621
McKain, Nest, 2372
McKay, Larry L., 2410, 2702
McKenney, D. S., 1684
McNally, Kieran J., 1981
McPherson, Carol A., 1230
McReynolds, Larry A., 2522
Meeks, John C., 125
Meincke, M., 2108
Menkel, Elke, 684
Merckx, R., 2954
Metler, P., 722
Michiels, Frank, 2130
Michiels, Kris, 2056
Michielsen, Annie, 2056
Migas, John, 264
Mikami, Eiichi, 555
Miller, Celia, 2046
Miller, F. C., 1082
Miller, Laurence G., 2333
Miller, R. C., Jr., 2480
Miller, R. M., 269
Miller, Terry L., 2468
Millet, J., 203, 207
Mills, Aaron L., 2002
Min, Hang, 488
Miró, Marcela, 741
Mirocha, Chester J., 254, 794, 1315, 1955
Mitsuoka, Tomotari, 1100
Miyan, S., 454
Miyoshi, S., 2073
Mizumori, Shigeyuki, 478
Mizutani, Takeo, 1100
Moillo-Batt, Agnes, 1040
Monnet, V., 2308
Montgomery, Stacy O., 1624
Montojo, Ana M., 741
Moore, Lillian H., 1203
Moragues, Maria D., 1612
Moran, Mary Ann, 2178
Moreton, R. S., 3009
Morgan, J. Alun W., 771, 2537
Mori, Naoyoshi, 3202
Mori, Tsukasa, 1665
Morita, Richard Y., 1122, 1860, 2710
Moriya, Tetsuhiro, 2726
Morotomi, Masami, 1026
Morton, Joseph B., 761
Moser, B., 2480
Mossé, M., 2944
Mountfort, Douglas O., 1016
Moyer, Craig L., 1122, 1860, 2710
Mueller, J. G., 3085
Mulbry, Walter W., 289
Mullen, M. D., 3143
Müller, Rudolf, 2499
Mulligan, Catherine N., 3016
Mullin, Beth C., 2155
Munoz, Eeva, 1560
Munro, Patrick M., 2017
Murphy, Maeve C., 2410
Murray, Robert E., 717
Mutai, Masahiko, 1026

Nagappan, Olagappan, 256
Nagaraja, T. G., 91
Nagashima, Masao, 1351
Nagel, Klaus, 526
Naidu, A. Satyanarayan, 2595
Nakamura, Keiko, 3208
Nakamura, Yoshiyuki, 2932
Nakano, Hiroyuki, 559, 1591, 2613
Nakano, Masayasu, 2569, 3202
Nakas, J. P., 177
Nakoshi, Masanao, 3107
Namba, Yuzaburo, 1100
Namdari, Hassan, 543
Nanmori, Takashi, 1638
Narang, Saran A., 568, 1192
National Collaborative Study, The, 1003
Navarro, Isabel M., 1591
Navarro, José A., 483
Nava Saucedo, José Edmundo, 2377
Nawaz, Mohamed S., 2267
Nealson, Kenneth H., 2607
Nelis, H. J., 2505, 3065
Nelson, Douglas C., 2909
Nelson, Edward T., 507
Nelson, Gene O., 2098
Nes, Ingolf F., 3119
Neviani, E., 2308
Ney, Ulrich, 1996
Nielsen, Lars Peter, 1234
Nielsen, Torkel Gissel, 1512
Niemelä, S. I., 1990
Nierman, Mark L., 1925
Nieto, J. J., 2385
Nilsson, Ingrid, 2595
Nilsson, Thomas, 871
Nipkow, A., 689
Nishimura, Hiroshi, 2036
Norqvist, Anders, 1400, 1907
Norred, W. P., 2745
Northolt, M. D., 2356
Notermans, Serve, 902
Novais, Júlio M., 21
Novak, Patricia D., 1157, 3051
Nystrom, Gerald J., 1220

Oda, Yuji, 1495, 1742
Ogg, James E., 95
Ogilvie, Marvin L., 2460
O'Hara, Graham W., 1870
Ohashi, Hiroshi, 1351
Ohmiya, Kunio, 2399
Ohotake, Akio, 2569
Ohtake, Akio, 3202
Ohtake, Hisao, 1665
Okabe, Tadashi, 559
Okumura, Hajime, 171
Olafsen, Jan A., 1435
Oldenhuis, Roelof, 2819
Olenchock, Stephen A., 1093
Oliver, James D., 2837
Olsen, Perry E., 520
Olson, R. J., 425
Oltmanns, Rüdiger H., 2499
Onishi, Syuji, 275, 478
Oragui, J. I., 401
Orden, José A., 1447
O'Reilly, Kirk T., 866, 2113
Oremland, Ronald S., 994, 2333
Oriel, P., 500
Orvos, David R., 1477
Osborne, J. M., 2247
Ose, Youki, 2036
Osman, Stanley F., 579
Otto, Manfred K., 2499
Ouchi, Kozo, 1495, 1742

Paau, Alan S., 862
Pace, John, 1877
Padre, Agnes T., 454
Paerl, Hans W., 2965
Page, William J., 1334, 1811
Paice, Michael G., 1147
Pajeau, Mark, 2572
Panda, T., 1044
Panoff, Jean-Michel, 1452
Panyim, Sakol, 2428
Papen, Hans, 2068
Papoutsakis, Eleftherios T., 317, 323
Paquin, Celine, 185

Pardo, Isabel, 539
Parisot, Denise, 2474
Parker, Mary L., 440
Parkin, T. B., 72
Parsons, Laura L., 717
Patel, Umesh D., 465
Pathre, S. V., 1955
Patterson-Curtis, Sandra I., 1544
Paul, John H., 1823, 1865, 2798
Pawlosky, Robert J., 794
Payment, Pierre, 1640
Payne, G. A., 86
Peck, Michael W., 940
Pedersen, E. Jonas, 3184
Pedersen, Karl, 279
Pedersen, Karsten, 2681
Peeler, James T., 1490, 1925
Peeters, Johan E., 1519
Pelmont, J., 340
Pendrys, John P., 1357
Perales, Ildefonso, 3032
Perestelo, F., 1660
Pérez-Rosas, Nerybelle, 495
Pestka, James J., 2561
Peter, Christopher R., 1504
Peters, James P., 2460
Petre, Jean, 984
Pettersson, Bert, 871
Pettersson, Hans-Erik, 2595
Pfützner, Marina, 1656
Phillips, Elizabeth J. P., 700, 3234
Phillips, Michael W., 1695, 1703
Pichard, Scott L., 2798
Piché, Y., 2320
Pickard, Michael A., 17
Pickup, Roger W., 771, 2537
Pierce, Kevin, 2416
Piette, J.-P. Gabriel, 1531
Plattner, Ronald D., 2190, 2195
Pock-Steen, Jan, 1512
Pocsidio, Joanne, 1026
Poinar, George O., 2601
Polaina, J., 3173
Pollock, Thomas J., 2302
Polzin, Kayla M., 2702
Pommepuy, Monique, 1040, 2424
Pons, J. L., 2944
Portalier, Raymond, 1717
Porteous, L. Arlene, 2200
Postma, Erik, 468, 3214
Powell, Godfrey E., 440
Power, Ultan F., 1386
Pratt, David S., 1093
Prensier, Gérard, 233
Presser, Theresa S., 2333
Preston, Glenn G., 165
Prevost, H., 751
Pribnow, David, 406
Price, W. Allen II, 1466, 1472
Priscu, John C., 2965
Pritchard, P. H., 1466, 1472, 1624, 3085
Pyle, B. H., 3226

Quesada, E., 2385

Rahouti, Mohammed, 2391
Rajagopal, B. S., 2123
Ramakrishna, Y., 2619
Ramsay, Bruce A., 584
Ramsay, Juliana A., 584
Rao, N. Shyamala, 767
Rapoport, Georges, 2739
Rasmussen, Joseph B., 1214
Rasmussen, M. A., 2089
Ravindranath, V., 2619
Raya, R. R., 2206
Reasoner, Donald J., 907, 912
Rebers, Paul A., 106
Reddy, G. S. N., 767
Reding, H. Keith, 666
Rehnstam, Ann-Sofi, 1907
Reichenbach, Stephen E., 2762
Reid, Ian D., 1147
Reid, William S., 3253
Rella, Manuela, 934
Renganathan, V., 330
Rengpipat, Sirirat, 2579
Rennenberg, Heinz, 2068
Reverdy, M. E., 2944
Revsbech, Niels Peter, 1234
Reynolds, Patrick J., 2280
Rice, Eugene W., 2443
Rice, Wendell A., 520
Richardson, A. J., 3080
Richardson, Laurie L., 261
Richaume, Agnes, 1730
Riemann, Bo, 1512
Rigsby, L. L., 611
Riley, Kelley R., 3189
Rinehart, K. L., 1990
Ristroph, J. D., 2098
Rivas, Joaquin, 758
Rivera, Maria D., 590
Robben, J., 2954
Robinson, J. A., 72
Robinson, Joseph A., 2460
Robinson, Robert A., 1220
Robinson, Victor A., 1093
Rodin, Nils, 2681
Rodrigues, Ubaldina M., 778
Rodriguez, Herminia, 758
Rogers, John E., 348, 2527
Romero, D. A., 1684
Roncel, Mercedes, 483
Rosa, M. Fernanda, 21
Rosazza, John P. N., 3029
Rose, Joan B., 3189
Rosswall, Thomas, 1375
Rothenburger, Stephen, 3247
Rouault, Annette, 1769
Rouxhet, Paul G., 2806
Roy, A. K., 531
Royer, J. C., 177
Rubin, Alan J., 2592
Rubio, Miguel Angel, 2904
Rudolph, Frederick B., 317, 323, 970
Ruiz-Berraquero, F., 2385
Ruiz-Santa-Quiteria, José A., 1447
Rule, Patricia L., 2702
Russell, Brenda L., 294
Russell, James B., 1, 1052, 2658, 2664
Rutala, William A., 511
Ryder, Ronald A., 95

Sá-Correia, Isabel, 21
Sadowsky, Michael J., 1730, 2532
Safferman, Robert S., 503
Sahm, Hermann, 684, 1996
Saisree, L., 767
Sakagami, Yoshikazu, 2036
Sakazawa, Chikahiro, 275, 478
Salcedo, Carmina I., 741
Salkinoja-Salonen, Mirja S., 516
Salmon, J. M., 953
Salyers, Abigail A., 2572
Salzberg, Sonia P., 523
Samson, Réjean, 3150
Sandin, Michael, 2681
Sandine, W. E., 2010
Sanjaghsaz, Hamid, 390
Sanschagrin, Sylvie, 3150
Sasatsu, Masanori, 1665
Sattar, Syed A., 3113
Saunders, Jon R., 771, 2537
Savage, C., 2944
Sawyer, Thomas K., 1074
Sayler, Gary S., 1286, 1323
Scanferlato, Vjera S., 1477
Scarcez, Thierry, 984
Schaefer, D. M., 50, 55
Schallenberg, Marc, 1214
Scheffers, W. Alexander, 468, 3214
Scheirlinck, Trees, 2130
Schell, Mark A., 3243
Schiewe, Michael H., 1128
Schillinger, Ulrich, 1901
Schimel, Joshua P., 1635
Schinner, Franz, 1153
Schippers, Bob, 1340
Schmidt, E. L., 1895
Schmidt, Karl-Herrmann, 1009
Schmidt, Thomas M., 2607
Schmitt, P., 751
Schneider, Henry, 2871, 2877
Schoberth, Siegfried M., 1996
Schocken, Mark J., 1220
Schrempf, Hildgund, 2653
Schroth, Milton N., 934
Schultze, S., 1249
Schuman, Donald B., 116
Schuman, J. D., 2344
Schupp, Daniel G., 1223
Schütz, M., 852
Schwab, Burney S., 2092
Schwartzentruber, K., 1320
Schwingel, W. R., 259
Scott, Warren J., 1635
Sehlin, H. Mikael, 3020
Seigle-Murandi, Françoise, 2391
Seip, E. R., 86
Serra, Juan L., 1612
Servais, Pierre, 2732
Sewell, G. W., 306
Shadix, Lois C., 2443
Shapiro, M., 1049
Sharma, Pramod, 2280
Sheehan, Pamela L., 240
Shen, G.-J., 689
Sheth, Vipula, 767
Shiaris, Michael P., 1391
Shields, Malcolm S., 1624
Shiloach, J., 1305
Shimao, Masayuki, 275, 478
Shimizu, Shoichi, 2399
Shimodori, Shoichi, 2726
Shinke, Ryu, 1638
Shinoda, S., 2073
Shirae, Hideyuki, 419
Shiragami, Hiroshi, 419
Shirai, Makoto, 2569, 3202
Shirey, James J., 2214
Shivaji, Sisinthy, 767
Shivprasad, Shailaja, 1811
Shockey, W. L., 1766
Siebeling, Ronald J., 1591
Sieracki, Michael E., 2762
Signer, Ethan R., 3229
Silver, Simon, 523
Simons, Guus, 1483
Singh, Gur Jai Pal, 2779
Siragusa, Gregory R., 2802
Sivonen, K., 1990
Sjöberg, Annelie, 1549
Skoog, Kerstin, 1974
Slade, E. A., 1426
Slininger, Patricia J., 649
Small, Christopher L., 1136
Sment, Karen A., 1295
Smith, Craig S., 2326
Smith, Darrell B., 380, 1003
Smith, Geoffrey B., 1957
Smith, Harry L., Jr., 95
Smith, M., 1380
Smith, M. Scott, 717
Smith-Somerville, Harriett E., 1106
Smits, J. P., 2850
Smolenski, Walter J., 2460
Somerville, Charles C., 548
Sommer, G., 852
Sørensen, Jan, 1234
Sorenson, William G., 1093
Šoštarić, Branko, 2856
Spain, Jim C., 372, 2648
Sparling, Richard, 1414
Speckman, Ray A., 573, 2517
Spierings, Gonnie, 3250
Springthorpe, V. Susan, 3113
Srinivasan, V. R., 2220
Stack, Michael E., 7
Stahl, Heidi G., 599
Staley, James T., 1033
Stanton, Thad B., 2365
Staudenbauer, Walter L., 2653
Steele, James L., 2410
Steen, William C., 2545
Steiman, Régine, 2391
Steinberg, Marvin P., 573
Stenström, Thor Axel, 142
Sterjiades, R., 340
Stewart, C. S., 3080
Stewart, Mic H., 2230
Stockdale, E., 2141
Stoecker, Diane K., 1761
Stott, Robert F., 3072
Stotzky, G., 661
Straube, William L., 548
Strijdom, Barend W., 3000
Strobel, Herbert J., 1, 2664
Struijs, Jacobus, 2527
Suárez, Guillermo, 1447
Suflita, Joseph M., 590, 2773
Sukhumavasi, Jiraporn, 2399
Sullivan, C., 1380
Sulya, Andrew W., 298
Suzuki, Carolyn K., 7

Suzuki, Isamu, 1117, 2588, 2918
Suzuki, Makoto, 3202
Sweerts, Jean-Pierre R. A., 754
Swinnen, Pieter, 2056
Symanowski, James, 106
Syväoja, Eeva-Liisa, 2690

Tackaberry, Patrick D., 1117
Tagami, Haruko, 171
Tailliez, P., 203, 207
Takai, Toshinao, 1591
Takaki, Mikihiro, 2613
Takamura, Yoshichika, 2569
Takayama, Kiyoshi, 559
Takegawa, Kaoru, 3107
Takigiku, Ray, 639
Takiguchi, Ryuichi, 1653
Taller, Barbara J., 266
Tamaki, Toshimi, 171
Tamplin, Benjamin R., 1504
Tamplin, Mark L., 2882, 3072
Tan, E., 722
Tangarone, B., 177
Tannock, Gerald W., 279, 461, 1848
Tartera, C., 2696
Tashima, Toshio, 2036
Tate, Robert L., III, 2155, 2161
Tatton, Marcus J., 440
Tayama, Kenji, 171
Taylor, A., 1320
Taylor, Scott L., 2195
Tebbe, Christoph C., 711
Tekaia, F., 1911
Thanh, L. Phan, 2308
Theodoridis, George, 1220
Theodorou, Michael K., 1363
Thierbach, Georg, 684
Thiry, Georges, 984
Thoene, Barbara, 2068
Thomas, Daniel, 2377
Thomas, J. M., 1058
Thomashow, Michael F., 2251
Thompson, Richard A., 2681
Thompson-Eagle, E. T., 1406
Thorne, Linda, 2302
Thrane, Ulf, 3184
Thurnheer, Thomas, 492
Tiedje, James M., 2773, 2924, 3022
Tirabasso, Patricia A., 2789, 3237
Tjarks, Larry W., 2190
Tochikura, Tatsurokuro, 3107
Toda, Kiyoshi, 1665
Tomasouw, W. François, 3214
Tommassen, Jan, 3250
Toranzos, Gary A., 1301
Tosteson, C. G., 137
Tosteson, T. R., 137
Tostowaryk, Walter, 3113
Towne, Gene, 91
Tracey, Ralph P., 1617
Tran, Van Mai, 1895
Travers, Russell S., 2437
Treat, Michael, 1026
Trevors, Jack T., 1649
Trinci, Anthony P. J., 1363
Trinick, Michael J., 1242, 2046
Trudel, Michel, 1640
Tsien, Hsien-Chyang, 3155
Tully, Raymond E., 1852
Tunlid, A., 1368
Tuovinen, Olli H., 312, 2717
Turco, Ronald F., 385
Tyndall, R. L., 722
Tynkkynen, Soile, 2690

Ucko, Michal, 2990
Upper, Christen D., 623
Uruburu, Federico, 539
Utt, E. A., 306

van Belkum, Marco J., 1187
van Bruggen, Ariena H. C., 2635
van de Guchte, Maarten, 224
Vanderleyden, Jos, 2056
van der Mei, Henny C., 2806
van der Vossen, Jos M. B. M., 224
van der Werf, M. J., 2850
Van Dijken, Johannes P., 468, 3214
Van Gool, August, 2056
van Groenestijn, Johan W., 219
van Kleef, M. A. G., 1209
van Niekerk, J. P., 1178
Van Orden, Dianna E., 3029
Van Voris, P., 198
Varel, Vincent H., 148, 3080
Venema, Gerard, 224, 394, 1187
Venkateswaran, Kasthuri, 559, 1591, 2613
Ventosa, A., 2385
Ventresque, Claire, 2732
Verduyn, Cornelis, 468
Verreth, Christel, 2056
Viegas, Cristina A., 21
Villacorta Martinez de Maturana, Isabel, 1519
Vink, Ruud L. J. M., 2819
Virginia, Ross A., 3058
Visvesvara, Govinda S., 1144
Vogel, Hans, 1974
Voigt, Jürgen, 526
Volk, Thomas J, 3095
Volkering, F., 2850
von Berg, Regina, 2068
von Wright, Atte, 2690

Wachinger, Gisela, 2653
Wackett, Lawrence P., 2723, 2960, 3155, 3162
Wadisirisuk, P., 1711
Wadström, Torkel, 2595
Wagner, Dean E., 1925
Waldon, Hollis B., 3058
Walia, S., 798
Walker, S. G., 2976
Wall, Judy D., 165
Wallace, R. John, 2372
Walsh, Suzanne M., 1298
Wang, Pi-Chao, 1665
Wang, Tsung Tsan, 3167
Wangwongwatana, Supat, 390
Ward, David M., 1818
Ward, L. J. H., 1426
Ware, Doris A., 1144
Warren, R. A. J., 2480
Warth, Alan D., 2995
Watanabe, Itaru, 454, 1026, 2407
Waterbury, J. B., 1888
Watling, Les, 2888
Watters, S. K., 3226
Webb, Kenneth L., 2762
Wehr, John D., 1605
Wei, R. D., 1928
Weightman, Andrew J., 2627
Weinhold, Albert R., 934
Weinstein, I. Bernard, 1026
Weisbrod, A. R., 1921
Wekell, Marleen M., 3072
Weller, Roland, 1818
Wells, George A., 3113
Wen, Yechun, 794
Wernars, Karel, 902
Westermann, Peter, 514, 1262, 2257
Westlake, Donald W. S., 36
Wetzel, Robert G., 1963
Wevers, Mary Jo, 78
Whitaker, Christopher J., 529
White, B. A., 2089
White, D. C., 1368
Whitehead, Terence R., 893
Whiticar, Michael J., 994
Whittaker, P. A., 695
Wiegel, Juergen, 348, 2735
Wiemer, David F., 1346
Wiesenborn, Dennis P., 317, 323
Wiik, Ragnhild, 819, 826
Wilcke, Burton W., Jr., 1504
Wilger, Pamela A., 631
Willey, J. M., 1888
Williams, Alan G., 2583
Williams, Myron N. V., 3229
Williams, R. E., 2262
Williams, W. Scott, 2448
Williamson, John S., 3029
Williamson, Joseph W., 1291
Wilson, C., 695
Wilson, Valerie, 433
Windels, C. E., 1315
Windham, W. R., 611
Winstanley, Craig, 771, 2537
Winter, Jeanette, 1203
Wirsen, Carl O., 2832, 2909
Witholt, Bernard, 1949, 2819
Witten, T. C., 1249
Wolf, D. C., 3143
Wolfe, Roy L., 2230
Wolfram, James H., 2267
Wolf-Watz, Hans, 1400, 1907
Wolin, Meyer J., 2468
Wolkin, Richard H., 3131
Wollum, A. G., II, 1957
Woloshuk, C. P., 86
Wong, Diana C. L., 2550, 2556
Wong, Tit-Yee, 266
Wood, Nathan D., 2200
Wright, Betty A., 503
Wright, Sara F., 761
Wyndham, R. Campbell, 1584

Xiao, Yingxian, 1724
Xie, Weiping, 794, 1315
Xu, Jimin, 806, 1136
Xu, Xigen, 794

Yabe, Kimiko, 2172
Yahya, Moyasar T., 3045
Yamamoto, Kenji, 3107
Yamanaka, H., 2073
Yang, Hsiuchin, 1078
Yang, Robert C. A., 568, 1192
Yano, Mitsuo, 1351
Yao, Raymond C., 1507
Yasuda, Naohiko, 419
Ye, C., 1860
Yeung, Kam-Ha Anna, 3243
Yoder-Williams, Michael P., 78
Yokoyama, Hiroshi, 2036
Yokozeki, Kenzo, 419
Yoshpe-Purer, Yona, 2041
Young, L. Y., 590
Yousten, Allan A., 294
Yucel, Irem, 1724

Zahab, D. M., 2871
Zehnder, Alexander J. B., 219
Zehr, Jonathan P., 2522
Zeiher, Carolyn, 165
Zeikus, J. G., 366, 689
Zeph, L. R., 661
Zhang, R., 733
Zhang, Xiaoming, 2735
Zhang, Y., 3124
Zhang, Yang, 2082
Zheng, Zhong, 66, 733
Zhu, Hong, 2105
Zhu, Yu Sheng, 1279
Zika, Rod G., 2843
Zinder, Stephen H., 488
Ziomek, Edmund, 1147, 2262
Zips, A., 1801
Zottola, E. A., 2344
Zuberer, David A., 1748
Zumft, Walter G., 1670
Zúñiga, Manuel, 539
Zylstra, Gerben J., 2648, 3162

SUBJECT INDEX
VOLUME 55

Abortive infection
  bacteriophage resistance, 2416
Absidia pseudocylindrospora
  herbicide transformation, 1220
Acanthamoeba cysts
  viability in ophthalmic solutions, 1144
Acclimation period
  halobenzoate dehalogenation, 2773
Acetate
  bacterial catabolism, 514
  M. barkeri temperature compensation, 1262
  metabolism by *B. japonicum*, 165
  production by *A. polyoxogenes*, 171
  production by methanogens, 2257
  threshold concentrations for catabolism, 514
  utilization kinetics, 488
Aceticlastic bacteria
  threshold acetate concentrations, 514
Acetoacetyl-coenzyme A:acetate/butyrate: coenzyme A-transferase
  C. acetobutylicum mutants, 970
Acetobacter polyoxogenes
  aldehyde dehydrogenase gene cloning, 171
Acetobacter xylinum
  cellulose production and role, 2448
  synthetic medium, 1317
Acetobacterium woodii
  ethanol production and utilization, 1835
Acetogenic bacteria
  A. kivui nickel transport, 1078
  strain PA-1 growth, 1289
Acetogenium kivui
  nickel transport, 1078
Acetonitrile
  degradation, 2267
3-Acetyldeoxynivalenol
  production by *F. graminearum*, 1315
15-Acetyldeoxynivalenol
  production by *F. graminearum*, 1315
Acetylene reduction
  B. japonicum, 2493
Acidic environments
  biofilm-metal interactions, 1250
  R. meliloti, 1870
Acidogenic bacteria
  C. acetobutylicum, 317
  L. delbrueckii subsp. *bulgaricus*, 185
  L. lactis subsp. *lactis*, 185
  S. salivarius subsp. *thermophilus*, 185
Acids
  uptake by *C. acetobutylicum*, 323
Acinetobacter spp.
  detection in drinking water, 2214
  polyphosphate-degrading enzymes, 219
Acquired immune deficiency syndrome
  2′,3′-dideoxynucleoside production, 419
Actinomycetes
  improved recovery medium, 2669
  ligninolytic activity, 1642
Activated sludge
  bacterial population structure, 897
  P. putida survival, 2627
  polyphosphate degradation, 219
Adaptation
  A. chroococcum, 1811
  E. coli in seawater, 2424
  heavy metal gradients, 2002
  Hg^{2+} and aquatic microbes, 1196
  mercury in aquatic environments, 1574
Adenine auxotrophy
  P. chrysosporium transformation, 406
Adenine nucleotides
  S. cerevisiae fermentation, 1312
Adherence
  bacterial growth rate control, 1308
  coagulase-negative staphylococci, 2806
  non-O1 *V. cholerae*, 2403
  ruminal bacteria and cellulose, 2089
Adhesion
  bacteria and soil particles, 142
  bacterial adhesion to meat, 1531
  F. succinogenes and cellulose, 3039
  polymer physicochemical properties, 2827
Adsorption
  polychlorinated biphenyls, 3150
Aeration
  effect on *C. shehatae*, 2152
Aeroadaptation
  A. chroococcum, 1811
Aerobic bacteria
  asphalt degradation, 1357
  isoquinoline degradation, 3247
Aeromonas hydrophila
  growth on fresh vegetables, 2167
  influence of modified atmosphere, 3012
Aeromonas spp.
  isolation from water, 2138
  suicide phenomenon, 543
Aerosols
  genetically engineered bacteria, 2641
  microbial droplet transport, 2349
  organic dust toxic syndrome, 1093
Aflatoxins
  biosynthesis, 2172
  inactivation, 465
  M. pruriens seeds, 531
  visual detection of synthesis, 1808
Agarose soy casein digest medium
  Pasteurella vaccine potency, 106
Agglutination
  V. cholerae, 2882
Aggregates
  recombinant proteins, 1106
  toxins on cell membranes, 2779
  Trichodesmium N_2 fixation, 2965
Agmenellum quadruplicatum
  larvicide biosynthesis, 2428
Agria cactus
  D. mojavensis ecology, 100
  microbial colonization, 100
Agrobacterium radiobacter
  biological control of *A. tumefaciens*, 741
Agrobacterium tumefaciens
  agrocin sensitivity and resistance, 741
  biological control, 741
Agrocin 84
  A. tumefaciens sensitivity, 741
Air separation system
  E. coli cultivation, 1305
Airlift fermentors
  chloroperoxidase production, 17
Alcaligenes eutrophus
  PHB and polyphosphate metabolism, 2932
Alcaligenes faecalis
  heterotrophic nitrification, 2068
Alcoholic fermentation
  population dynamics, 539
  S. cerevisiae Crabtree effect, 468
  sluggish and stuck fermentation, 953
  yeast hull effect, 1560
Aldehyde dehydrogenase
  acetic acid production, 171
  cloning of gene, 171
Aldehydes
  S. sucromutans, 927
Alfalfa-corn diet
  ruminal microorganisms, 148
Algal cultivation
  culture contamination, 2990
Alkaline phosphatase
  production by *C. graniforme*, 2511
Alkanes
  microbial metabolism, 269
Alluvial soils and sediments
  humus formation, 922
  lignin degradation, 922
Alternaria alternata
  selenium volatilization, 1406
Alternate electron acceptors
  hydroxybenzoate isomer metabolism, 590
Alteromonas putrefaciens
  hydrogen and formate oxidation, 700
  iron or manganese reduction, 700
Altertoxins
  superoxide production, 7
Amides
  biodegradation, 2545
Amines
  production by intestinal anaerobes, 2894
  production by lactobacilli, 2356
Amino acids
  excretion by *M. voltae*, 1295
  transport by peptostreptococci, 2658
Aminobenzenesulfonates
  bacterial carbon source, 492
23-Amino-*O*-mycaminosyltylonolide
  macrolide antibiotic immunoassay, 1507
Aminopeptidase
  L. bulgaricus mutants, 1717
  L. lactis subsp. *cremoris*, 2308
Ammonia
  industrial waste nitrification, 240
  oxidation by *Nitrosovibrio* spp., 2108
  production by ruminal bacteria, 1052
Amoebae
  density and distribution, 722
  Maryland soils, 1074
  thermal addition effects, 722
Ampicillin resistance
  gene cloning, 2056
Amylase
  B. stearothermophilus, 1638
α-Amylase
  expression in *L. plantarum*, 2130
  expression in *S. cerevisiae*, 3167
β-Amylase
  C. thermosulfurogenes, 689
Anacystis nidulans
  hydrogen peroxide production, 483
Anaerobic bacteria
  dichloroaniline degradation, 2527
  enumeration on forages, 1766
  enumeration in pig ceca and colons, 1112
  increase in aging rats, 2468
  kinetics of nitrate utilization, 717
  selenate reduction in sediment, 2333

Anaerobic biodegradation potential
digesting sludge, 433
Anaerobic bioreactors
methanogen subpopulations, 1996
Anaerobic dechlorinating consortia
characterization, 1472
freshwater sediments, 2735
Anaerobic fungi
Neocallimastix sp. growth, 1363
Anaerobic incubation
isolation of *Aeromonas* spp., 2138
Aniline
degradation by a *Pseudomonas* sp., 385
Animal feed
fusarochromanone, 3184
Anion-exchange chromatography
Synechocystis mutant selection, 1452
Anisoles
synthesis by *P. pomaceus*, 1981
Anopore inorganic membrane filter
comparison with Nuclepore, 529
Anoxic aquifer slurries
hydroxybenzoate isomer metabolism, 590
Ant-garden fungus
characterization, 1346
Anthoceros punctatus
Nostoc hormogonia formation, 125
Anthrax toxin
response of rats, 2098
Antibacterial agents
hand-washing agents, 3113
hen egg white lysozyme, 631
L. sake compounds, 1901
LP system, 2802
sodium lactate, 2226
Antibiotic resistance
gene cloning in *E. coli*, 2056
gram-negative enteric bacteria, 2287
R. leguminosarum diversity, 109
Antibiotics
enzyme immunoassay, 1507
resistant *S. typhimurium*, 2344
sirodesmin PL, 1555
Antibodies
cyanobacterial toxins, 1928
macrolide antibiotic immunoassay, 1507
Antiseptics
standardization of activity, 1911
Antiviral agents
chlorine, 390
2′,3′-dideoxynucleoside production, 419
hand-washing agents, 3113
Ants
fungus cultivation, 1346
Apples
invasion by *P. syringae*, 533
Aquaculture
bacterial colonization of fish eggs, 1435
Aquatic environments
adaptation to heavy metals, 2002
amide degradation, 2545
bacterial nucleic acid production, 1865
bacterial survival and detection, 788
biofilm-metal interactions, 1250
chloroaromatic compound degradation, 1466, 1472
E. carotovora survival, 1477
microbial adaptation to Hg^{2+}, 1196
nucleic acid isolation, 548
pathogenic *Naegleria fowleri*, 722
surfactant biodegradation, 2092
thermophilic amoebae, 722
toxigenic vibrios, 2613
V. mimicus ecology, 2073
Aquifers
hydroxybenzoate isomer metabolism, 590
Archaebacteria
continuous culture, 2086
flagella, 1414
plating efficiency, 3020
Arginine
neurotoxin formation regulation, 1544
protease formation regulation, 1544
Aroclor 1254
adsorption-desorption, 3150
Aromatic hydrocarbons
utilization by *P. putida*, 1523
Arthrobacter protophormiae
endo-β-*N*-acetylglucosaminidase, 3107
Arthrobacter spp.
4-chlorobenzoate degradation, 478
Arthrobacter viscosus
penicillin G acylase gene, 1351
Aspartate
C. glutamicum lysine formation, 684
Aspergillus alliaceus
3-methoxy-17β-estradiol, 3029
Aspergillus flavus
genetic transformation system, 86
Aspergillus fumigatus
rat intratracheal exposure, 2856
Aspergillus parasiticus
trpC gene, 2561
Aspergillus spp.
aflatoxin synthesis detection, 1808
Aspergillus wentii
growth estimation method, 1044
Asphalt cement-20
biodegradation, 1357
Astaxanthin
P. rhodozyma, 116
Atlantic salmon
V. salmonicida virulence, 819
Attachment
bacteria and meat surfaces, 832
bacterial growth on meat, 1329
polymer physicochemical properties, 2827
Attine ants
fungus cultivation, 1346
Autoanalysis Colilert test
comparison with membrane filtration, 3091
evaluation, 2443
Autotrophy
Beggiatoa spp., 2909
sulfur bacteria, 639
Auxotrophy
A. xylinum mutants, 1317
a_w
C. botulinum toxin production, 656
Azide
C. tropicalis xylose fermentation, 1974
Azorhizobium caulinodans
epiphytic occurrence, 2407
survival in rice rhizosphere, 454
Azospirillum brasilense
gene expression in *E. coli*, 2056
Azospirillum spp.
uptake hydrogenase, 2315
Azotobacter chroococcum
aeroadaptation, 1811
catechol formation, 1811
hydroxamic acids, 298
melanization, 1811
Azotobacter vinelandii
cytokinin production, 266
exponential growth, 1334
poly-β-hydroxybutyrate, 1334

Baccharis spp.
Fusarium mycotoxins, 254
Bacillus cereus
electroporation, 1649
toxin production, 2595
transformation, 1649
Bacillus circulans
xylanase gene expressed in *E. coli*, 1192
xylanases, 568
Bacillus licheniformis
antibiotic susceptibility, 3026
colonial variants, 3026
enzyme activities, 3026
Bacillus polymyxa
gene cloning in *E. coli*, 3173
genetic transformation, 2517
Bacillus sphaericus
carbohydrate metabolism, 294
mosquitocidal toxin genes, 252
Bacillus spp.
denitrification phenotype, 1023
β-mannanase gene in *E. coli*, 3178
P. aeruginosa phenotype, 1023
Bacillus stearothermophilus
amylase, 1638
B. thuringiensis gene expression, 3208
isolation, 500
phenol hydroxylase, 500
Bacillus subtilis
adsorption of clays, 2976
antibiotic susceptibility, 3026
B. sphaericus gene expression, 252
B. thuringiensis gene expression, 446, 3208
colonial variants, 3026
delta-endotoxin gene expression, 446, 2302
differential enzyme expression, 2675
enzyme activities, 3026
heavy metal binding, 2976
inducible secretion of cellulase, 2739
penicillin G acylase gene expression, 1351
protoplast fusion, 2675
Bacillus thuringiensis
abundance and distribution, 2437
delta-endotoxin gene expression, 446, 2302
gene expression in *B. stearothermophilus*, 3208
gene expression in *B. subtilis*, 446, 3208
separation of protein from spores, 1279
toxin binding to cell membranes, 2779
Bacterial hydrophobicity
adhesion to soil particles, 142
Bacterial metabolism
2,2′-diaminopimelic acid, 212
Bacterial production
estimation in Lake Vechten, 1787
vascular plant detritus, 2178
Bacteriocin
gene cloning from a plasmid, 1187
Bacteriophages
D. salexigens, 645
differential promoter regulation, 771
L. lactis sensitivity, 2410, 2702

lactococcal resistance, 2416
origin of environmental viruses, 2696
P1 transduction of bacteria, 661
ϕadh in *L. acidophilus*, 2206
resistance conferred by plasmids, 1537, 1684
ruminal microorganisms, 1630
soil bacteria, 661
transport in soil and tuff, 2061
Bacterioplankton
regulation in estuaries, 1512
Bacteroides fragilis
amine production, 2894
origin of environmental bacteriophages, 2696
Bacteroides ruminicola
xylanase gene cloning, 893
Bacteroides succinogenes
cellodextrinase gene cloning, 132
Bacteroides thetaiotaomicron
competitiveness in vivo, 2572
Bacteroids
acetate-activating enzymes, 165
DNA superhelicity, 1420
Baker's yeast
cryotolerance in doughs, 2453
desirable characteristics, 1495
haploids from industrial strains, 1742
Bark compost media
Rhizoctonia damping-off, 1368
Barophilic bacteria
manganese binding, 764
Basidiomycetes
extracellular enzyme detection, 1457
iron-binding compounds, 2720
Batch culture
C. fumago, 17
C. thermocellum, 3131
M. barkeri, 940
M. mazei, 940
S. cerevisiae, 1312
Bayberry
characteristics of *Frankia* strains, 2161
diversity of *Frankia* strains, 2155
Beggiatoa spp.
characterization, 2909
Benthic dinoflagellates
bacterial flora, 137
growth and toxicity, 137
Benzalkonium chloride
resistant *P. aeruginosa*, 2036
Benzene
biodegradation, 3221
Benzo[*a*]pyrene
biotransformation, 1391
β-D-Glucuronidase
E. coli in human fecal samples, 335
β-Glucose-1-phosphate
L. lactis, 1549
Betaine
fermentation and oxidation, 965
Bile acid 3-sulfates
bile acid-desulfating bacterium, 2954
Bile salt hydrolase
Lactobacillus spp., 11
murine intestinal tract, 1848
Binding
heavy metals to cell surfaces, 2976
protein toxin to cell membranes, 2779
Biocides
metal-working fluids, 2681
Biodegradable dissolved organic C
determination in water, 2732
Biodegradable plastics
poly-β-hydroxybutyrate, 1334, 2932
Biodegradation
acetonitrile, 2267
amides, 2545
aniline, 385
aromatic hydrocarbons, 1523
asphalt cement-20, 1357
barley straw, 3080
benzene, 3221
chlorinated aliphatic hydrocarbons, 2819
chloroaromatic compounds, 1466
chlorobenzene, 1037
3-chlorobenzoate, 1584
4-chlorobenzoate, 478
4-chlorobiphenyl, 798
p-chlorotoluene, 372
citrate, 1375
creosote, 3085
p-cresol, 866
crude oil, 36
2,4-D, 2717
dichloroanilines, 2527
4,4′-dichlorobiphenyl, 887
2,4-dichlorophenol, 348, 2735
4-fluorobenzoate, 2499
forage cell walls, 3080
2-furoic acid, 1829
glufosinate, 711
humic acid, 1282
humic acid-bound molecules, 2843
hydroxylated biphenyls, 946
isoquinoline, 3247
lignin, 922
lignin-related compounds, 1642
lignocellulose, 1165
metalaxyl, 66
metal-working fluids, 2681
pentachlorophenol, 2113
phosphinothricin, 711
polycyclic aromatic hydrocarbons, 154, 1391, 1968
polyphosphate, 219
protein in sediment community, 1963
refuse in landfills, 55
sewage sludge, 433
surfactants, 2092
T-2 toxin, 190
tetrachlorohydroquinone, 516
toluene, 1624
trichloroethylene, 1624, 2819, 2960, 3155, 3162
vascular plants, 2178
wood and wood fragments, 871
xenobiotic compounds, 1578
Biofilms
bacterial growth rate control, 1308
chlorination, 29
interactions with metals, 1250
polymer physicochemical properties, 2827
Biological control
A. tumefaciens, 741
mosquito larvicide, 2428
parasitic helminths, 1178
Bioluminescence
X. luminescens, 2601, 2607
Biomass
C. versicolor wood pulp brightening, 1147
E. coli cultivation, 1305
measurement by image analysis, 2762
measurement by ultrasound, 1801
measurement in sediments, 2888
measurement in soil, 1635
production by *L. oenos*, 2488
Bioreactors
methanogen subpopulations, 1996
Biosurfactants
production by *P. aeruginosa*, 3016
Biotransformation
benzo[*a*]pyrene, 1391
chlorinated aliphatic compounds, 837
chlorinated alkenes, 2144
naphthalene, 1391
phenanthrene, 1391
1,1,1-trichloroethane, 845
Birch wood
polysaccharide localization, 2293
Birds
Lyme disease reservoirs, 1921
V. cholerae, 95
Bison
ruminal microorganisms, 148
Bleaching
pulp brightening by *C. versicolor*, 1147
Blood agar
Pasteurella vaccine potency, 106
Body weight
rat response to toxin, 2098
Bradyrhizobium japonicum
acetate-activating enzymes, 165
acetylene reduction, 2493
bacteroid enzymes, 165
host plant effects, 2532
Hup^c mutants, 1157
hydrogenase expression, 3051
hydrogenase synthesis, 1157
inoculant mobility, 2493
migration, modulation, and N_2 fixation, 1711
nodulating competitiveness, 1895
nodule occupancy, 2493
pleomorphic forms, 666
survival in fluid gels, 617
Bradyrhizobium spp.
bacteroid function regulation, 1420
competition for nodulation, 1242
DNA superhelicity, 1420
nodulation competitiveness, 3000
P. andersonii nodules, 2046
Brevibacterium sp. strain KY-4313
canthaxanthin source, 2505
Buildings
ammonia-oxidizing bacteria, 2108
Butanol
membrane fluidity effect, 2729
Butyrivibrio fibrisolvens
xylB expression in *E. coli*, 306
xylosidase gene, 306

Cactus tissue
D. mojavensis ecology, 100
microbial colonization, 100
Cadmium
C. reinhardtii resistance, 526
citrate decomposition, 1375
resistance screening, 2101
Caldariomyces fumago
chloroperoxidase production, 17
Campbell-like integration
L. lactis and plasmid DNA, 394
Candida albicans
surface-active properties, 2119

Candida shehatae
temperature and aeration shifts, 2152
Candida tropicalis
xylose fermentation and azide, 1974
Candida utilis
glucose competition, 3214
Canthaxanthin
Brevibacterium sp., 2505
Carbohydrates
metabolism by *B. sphaericus*, 294
Carbon
autotrophic sulfur bacteria, 639
cytoplasmic pools and salt stress, 1635
measurement in water, 2732
Carbon dioxide
G. margarita growth, 2320
Carbon monoxide dehydrogenase
methanogenesis, 2123
Carbon sources
aminobenzenesulfonates, 492
3-nitrobenzenesulfonate, 492
Carbonyl cyanide *m*-chlorophenylhydrazone
E. coli halotolerance, 1040
Carotenoids
canthaxanthin production, 2505
profiling and quantitation, 3065
Casein manufacturing
lactococcal bacteriophage resistance, 1537
Catabolic plasmids
pWW0, 1323
Catechol
A. chroococcum aeroadaptation, 1811
Cattle
ruminal fungal development, 2360
ruminal microorganisms, 148
Caulobacter spp.
mercury volatilization, 523
cDNA
selective recovery of 16S rRNA, 1818
Cecal microorganisms
enumeration in pigs, 1112
ruminal fungal development, 2360
Cell concentration
T. ferrooxidans iron oxidation, 1117
Cell cycle
Synechococcus sp. and light, 425
Cell envelope
E. coli metal binding, 2976
V. parahaemolyticus growth, 1877
Cell size
biomass determination, 2762
yeast preservative resistance, 2995
Cell surface
staphylococcal adherence, 2806
Cell surface charge
bacterial attachment to meat, 832
Cell volume
bacterioplankton, 1512
planktonic protozoa, 1761
Cell wall
B. subtilis metal binding, 2976
Cellobiose
growth of ruminal fungi, 1695
Cellodextrinase
gene expression in *E. coli*, 132
Cellulase
S. reticuli, 2653
Cellulolytic bacteria
C. longisporum, 3080
enumeration, 2789
rumens of cattle and bison, 148
Cellulomonas fimi
endoglucanase C, 2480
Cellulomonas spp.
differential enzyme expression, 2675
protoplast fusion, 2675
Cellulose
degradation by *S. reticuli*, 2653
digestion by bacteria, 2247
F. succinogenes adhesion, 3039
fermentation, 203, 207
fermentation by *C. thermocellum*, 3131
fungal growth estimation, 1044
role in *A. xylinum*, 2448
ruminal bacterial adherence, 2089
synthesis by *A. xylinum*, 1317
utilization by ruminal fungi, 1703
Cenococcum graniforme
hydrolytic enzyme production, 2511
Chaotropic neutral salts
aggregate solubilization, 1106
Cheddar cheese
Lactobacillus crystal production, 2579
Cheese manufacturing
amine production, 2356
Lactobacillus crystal production, 2579
lactococcal bacteriophage resistance, 1537
Cheese whey
glycerol production, 573
Chemoheterotrophs
P. saccharophila, 3197
subsurface sediments, 1058
Chemostat culture
S. cerevisiae Crabtree effect, 468
Chemotaxis
M. hungatei, 264
Synechococcus spp., 1888
Chlamydomonas reinhardtii
cadmium resistance, 526
Chloramine
E. cloacae enumeration, 3226
Chlorinated aliphatic compounds
biotransformation, 837
degradation, 2819
Chlorination
rapid sand filter gravel, 29
Chlorine
cyst inactivation, 2592
injured *E. coli* survival, 1298
L. pneumophila inactivation, 3045
virucidal effectiveness, 390
Chlorine dioxide
drinking water disinfection, 1519
Chloroaromatic compounds
anaerobic degradation, 1466, 1472
Chlorobenzene
degradation by a *P. putida* strain, 1037
Chlorobenzoates
bacterial dehalogenation, 887
degradation, 478, 1584
4-Chlorobiphenyl
biodegradation, 798
catabolic plasmid pSS50, 1286
Chloromethane
P. pomaceus anisole biosynthesis, 1981
Chloroperoxidase
C. fumago, 17
Chlorophyll *a*
profiles in cyanobacteria, 822
p-Chlorotoluene
degradation, 372
Δ^2- and Δ^3-Cholenoic acids
formation by a fusobacterium, 2954
Chrome azurol S agar
differentiation of *Rhizobium* isolates, 707
Chromium
reduction by *E. cloacae*, 1665
Chromosomes
L. lactis plasmid DNA integration, 394
L. lactis transformation, 1769
L. plantarum gene integration, 2130
Chymosin
production by *P. mirabilis*, 1009
cI repressor
p_L and p_R regulation, 771
Citrate
decomposition, 1375
Clays
heavy metal binding, 2976
Cloning
A. brasilense gene, 2056
aldehyde dehydrogenase gene, 171
α-amylase gene, 3167
B. circulans xylanase genes, 568
B. succinogenes cellodextrinase gene, 132
B. thuringiensis delta-endotoxin gene, 446
Bacillus β-mannanase gene, 3178
bacteriocin genes from a plasmid, 1187
bacteriophage resistance determinants, 1684
C. fimi endoglucanase gene, 2480
4-chlorobiphenyl degradation, 798
DNA expression in K88 pili, 984
electroporation, 1483
endo-1,4-β-D-glucanase gene, 2399
Erwinia gene in *E. coli*, 2220
β-glucosidase gene, 3173
L. monocytogenes gene, 2251
P. putida OU83, 798
penicillin G acylase gene, 1351
R. flavefaciens genes, 1230
trpC of *A. parasiticus*, 2561
xylanase gene, 893
Clostridium acetobutylicum
coenzyme A transferase, 323
membrane fluidity, 2729
phosphotransbutyrylase, 317
solvent production mutants, 970
uptake of acids, 323
Clostridium botulinum
neurotoxin formation regulation, 1544
protease formation regulation, 1544
Seto Inland Sea of Japan, 559
toxin production, 656
toxin production control, 2226
Clostridium collagenovorans
gelatin conversion to methane, 366
Clostridium cylindrosporum
spore germination, 1380
Clostridium innocuum
3β-hydroxysteroid dehydrogenase, 1656
Clostridium josui
endoglucanase gene cloning, 2399
Clostridium longisporum
forage degradation, 3080
Clostridium perfringens
amine production, 2894
E. coli-C. perfringens shuttle vector, 360
enterotoxin detection, 2141
plasmid transformation, 360
Clostridium spp.
chlorinated aliphatic compound transformation, 837
1,1,1-trichloroethane transformation, 845

Clostridium thermocellum
cellulase expression in *B. subtilis*, 2739
cellulose fermentation, 202, 207
cellulosic substrate fermentation, 3131
endoglucanase gene expression, 2095
Clostridium thermosulfurogenes
β-amylase production, 689
Coagulase-negative staphylococci
physicochemical surface properties, 2806
Cobalt
F. moniliforme growth, 649
Cocultures
gelatin conversion to methane, 366
Cod
bacterial colonization of eggs, 1435
Coenzyme A transferase
C. acetobutylicum acid uptake, 323
Coenzyme F_{420} analogs
batch growth of *Methanosarcina* spp., 940
Coliform bacteria
detection, 507
detection in water, 1003
enumeration, 33
ozone exposure, 33
Coliphages
depuration by mussels, 1386
Colloidal gold cytochemistry
birch wood polysaccharides, 2293
Colon
aging rats, 2468
nitrate metabolism, 2899
proteolysis by microflora, 679
Colonization
Eurasian water milfoil, 2326
submersed aquatic plants, 2326
Competition
B. japonicum, 2532
B. japonicum nodulation, 1895, 1957
B. leguminosarum strains, 1599
B. thetaiotaomicron in vivo, 2572
Bradyrhizobium nodulation, 3000
Bradyrhizobium spp., 1242
diallel analysis, 1599
P. syringae survival, 1690
R. leguminosarum strains, 2755
T. ferrooxidans iron oxidation, 1117
yeasts and glucose, 3214
Composting ecosystem
physical modeling, 1082
Contact lenses
Acanthamoeba viability, 1144
Continuous culture
C. fumago, 17
C. shehatae, 2152
C. thermocellum, 3131
C. thermosulfurogenes, 689
intestinal bacteria, 672
methanogenesis from ethanol, 440
mycoplasmas, 852
nuclear polyhedrosis virus, 1049
P. furiosus, 2086
P. stutzeri, 1670
thermostable β-amylase, 689
Cooling lakes
thermal addition effects, 722
Copper
citrate decomposition, 1375
L. pneumophila disinfection, 3045
toxicity in estuaries, 43
Copy number
R. fredii plasmids, 813
Coriolus versicolor
biomass production, 1147
wood pulp brightening, 1147
Corky root of lettuce
gram-negative bacterium, 2635
Corn silage
organic dust toxic syndrome, 1093
Corrins
lindane dehalogenation, 1258
Corynebacterium glutamicum
lysine formation, 684
Cotton
seedling disease repression, 2793
Crabtree effect
S. cerevisiae, 468
Crassostrea gigas
bacterial colonization, 1128
V. vulnificus survival, 3072
Crassostrea virginica
V. cholerae agglutination, 2882
V. vulnificus survival, 3072
Creosote
biodegradation, 3085
p-Cresol
biodegradation, 866
C-ring cleavage
flavonoids, 1203
Crown gall
biological control, 741
Crude oil
biodegradation, 36
Cryoprotectants
V. cholerae, 2726
Cryotolerance
baker's yeast, 2453
Cryptosporidium parvum
oocyst survival, 1519
Cryptosporidium spp.
oocyst detection, 3189
Culture conditions
P. syringae and tobacco cells, 1724
Cultured Pacific oysters
bacterial colonization, 1128
Cunninghamella elegans
phenanthrene metabolism, 2275
Cupric ion
toxicity in estuaries, 43
Cutaneous microbial flora
antiseptic standardization, 1911
Cutworm
pBR322-bearing bacteria, 2200
Cyanase
P. fluorescens cyanate utilization, 256
Cyanate
utilization by *P. fluorescens*, 256
Cyanobacteria
chemokinetic motility responses, 261
chemotaxis, 1888
hepatotoxin structure, 1990
hormogonia formation, 125
Microcystis growth medium, 2569
Microcystis toxin, 3202
nitrogen fixation, 758
nitrogen fixation profiles, 882
phycoerythrin content, 758
toxin purification, 3202
Cysts
detection in water, 3189
inactivation by chlorine, 2592
viability in ophthalmic solutions, 1144
viability in water, 1223
Cytochrome cd_1
denitrifying bacteria, 2924
Cytochrome reduction
Pseudomonas sp. strain VM15C, 275
Cytokinins
A. vinelandii, 266
"*Cytophaga psychrophila*"
phenotypic and genomic studies, 1796
Cytophaga sp.-like bacteria
colonization of oysters, 1128

Damping-off
suppression by bacteria, 1368, 2793
O Dealkylation
3-methoxy-17β-estradiol, 3029
γ-Decalactone
S. salmonicolor, 2939
Decanoic acid
yeast growth inhibition, 21
Dechlorination
characterization of consortia, 1472
2,4-dichlorophenol in sediments, 2735
methanogenic conditions, 2144
tetrachloroethylene, 2144
tetrachlorohydroquinone, 516
trichloroethylene, 2144
Deciduous trees
crown gall control, 741
Deep-sea hydrothermal plumes
Beggiatoa spp., 2909
manganese binding by bacteria, 764
microbial hydrocarbon utilization, 2832
Defined substrate method
national field evaluation, 1003
Defluorination
3-fluoro-substituted benzenes, 330
Degenerate oligonucleotide primers
nifH amplification, 2522
Degradable plastics
poly-β-hydroxybutyrate, 1334, 2932
Dehalogenation
chlorobenzoates, 887
dichloroanilines, 2527
halobenzoates, 2773
lindane, 1258
Deleya aesta
growth rate influences, 1755
Delta-endotoxin
gene expression in *B. subtilis*, 446, 2302
Denitrification
Bacillus sp., 1023
estuarine sediment, 1841
kinetics of nitrate utilization, 717
microzonation in sediments, 1234
P. stutzeri enzymes, 1670
stochastic models, 72
Denitrifying bacteria
heme and copper nitrate reductases, 2924
Density
estimation from dilution counts, 1934
Deodorization
T. thioparus TK-m, 555
Deoxynivalenol
Fusarium isolates, 2619
production by *F. graminearum*, 1315
Depuration
mussels, 1386
Desert soil
soil bacteria, 2420
woodland rhizobia, 3058
Desulfovibrio desulfuricans
enzymes and methanogenesis, 2123
lignin modification, 2262

Desulfovibrio salexigens
lytic bacteriophage, 645
Desulfovibrio vulgaris
enzymes and methanogenesis, 2123
Desulfuromonas spp.
betaine fermentation and oxidation, 965
Detection
acinetobacters in water, 2214
aflatoxin synthesis, 1808
bacteria in aquatic environments, 788
coliform bacteria, 507
Cryptosporidium oocysts, 3189
E. coli in oysters, 229
E. coli in potable water, 1003
E. ictaluri, 3253
engineered DNA in soil, 3022
enterotoxin, 2141
extracellular enzymes, 1457
fecal coliforms in water, 907
fungi on roots, 761
β-galactosidase, 3240
genes that encode responses to pollutants, 1574
genetically engineered microorganisms, 1301
Giardia cysts, 3189
L. monocytogenes, 2251
L. pneumophila in water, 1640
lactobacilli, 461
lactobacilli in cheese, 2356
Listeria spp. in food, 599
Listeria strains, 902
macrolide antibiotics, 1507
nuclear polyhedrosis virus, 2749
P. betae in soil, 1273
phage-transduced bacteria, 661
pseudomonad in lake water, 2537
Salmonella spp., 3032
selective recovery of 16S rRNA, 1818
T. ferrooxidans, 2025
total coliforms, 2443
total coliforms in potable water, 1003
Detoxification
P. acnes nitrate reduction, 2899
wastewater ultrafiltration concentrates, 401
Deuterated acetylene
ethylene biosynthesis and nitrogenase estimation, 354
Dextranase
induction in *L. starkeyi*, 2079
Diallel analysis
B. leguminosarum strains, 1599
2,2′-Diaminopimelic acid
metabolism in vitro, 212
Dicarboxylate
B. japonicum pleomorphism, 666
Dichloroanilines
reductive dehalogenation, 2527
4,4′-Dichlorobiphenyl
biodegradation, 887
Dichlorophenol
dichloroaniline degradation, 2527
2,4-Dichlorophenol
anaerobic biodegradation, 348, 2735
2,5-Dichlorophenol
hydroxylation by *P. putida*, 2648
2,4-Dichlorophenoxyacetic acid
biodegradation, 2717
2′,3′-Dideoxynucleosides
production by *E. coli*, 419
Diet
ruminal fungal development, 2360
Dietary fiber
longevity, 1100
Differential media
Lactobacillus spp., 11
Digesting sludge
biodegradation potential, 433
Dilution counts
microbial density estimation, 1934
Dimethyl sulfide
methylotrophic methanogen, 994
removal from air, 555
Diphenyl ether cleavage
gene expression in *E. coli*, 2220
Direct counting
Anopore and Nuclepore compared, 529
sediment bacteria, 1214
Direct plating media
L. monocytogenes enumeration, 1645
Disinfection
C. parvum oocysts, 1519
drinking water, 2230
drinking water chloramination, 3226
flowing water, 2949
L. pneumophila in water, 3045
P. aeruginosa resistance, 2036
surgical scrubs, 2944
testing with *Pseudomonas* pellicle, 511
Dispersion
microbial droplet transport, 2349
Dissimilatory nitrate reductases
denitrifying bacteria, 2924
P. acnes, 2899
Dissolved metals
microbial biofilm interactions, 1250
Diversity
B. thuringiensis, 2437
Frankia strains from bayberry, 2155
R. leguminosarum serogroups, 109
Sonoran Desert rhizobia, 3058
DNA
aromatic hydrocarbon utilization, 1523
B. cereus transformation, 1649
binding by freshwater bacteria, 2798
expression in K88 pili, 984
fate in model environments, 771
L. lactis plasmid DNA integration, 394
P. alcaligenes DNA in *P. putida*, 1037
plasmid DNA of *P. putida*, 1037
release by engineered bacteria, 1865
superhelicity in a *Bradyrhizobium* strain, 1420
turnover in freshwater environments, 1823
uptake by freshwater bacteria, 2798
DNA gyrase
B. japonicum Hup^c mutants, 1157
DNA probes
bacteria in aquatic environments, 788
engineered-DNA detection, 3022
enterobacteria, 3250
G. graminis, 284
hybridization with whole-community genome, 1574
lactobacilli, 461
Listeria strains, 902
nuclear polyhedrosis virus, 2749
phage-transduced bacteria, 661
DNA-DNA homology
L. lactis strains, 2410
Dormancy
E. coli survival in water, 246
Dot-immunobinding assay
T. ferrooxidans detection, 2025
Dot-immunoblot assay
fungi on roots, 761
Dough
baker's yeast cryotolerance, 2453
Drinking water
C. parvum oocysts, 1519
chlorination, 29
coliform bacterium detection, 507
coliform determination, 3091
coliforms exposed to ozone, 33
detection of acinetobacters, 2214
detection of coliforms, 1003
disinfection, 2230
dissolved organic carbon, 2732
E. cloacae and chloramination, 3226
Giardia cyst viability, 1223
injured *E. coli* survival, 1298
isolation of *Aeromonas* spp., 2138
pigmented bacteria, 912
virucidal agent potentiation, 390
Droplets
microbial dispersion, 2349
Drosophila mojavensis
ecology, 100

Ectomycorrhizal fungi
hydrolyase production, 2511
Edge detectors
biomass determination, 2762
Edwardsiella ictaluri
plasmid homologies, 3253
Egg white lysozyme
effect on *L. monocytogenes*, 631
Electrode system
microbial enumeration in water, 2082
Electron microscopy
disinfectant testing, 511
Electroporation
B. cereus, 1649
E. coli-C. perfringens shuttle vector, 360
L. lactis subsp. *cremoris*, 3119
L. lactis subsp. *lactis*, 604, 2621
L. paramesenteroides, 1483
L. plantarum, 2095
S. cerevisiae, 2242
Emulsan
crude oil biodegradation, 36
Endo-1,4-β-D-glucanase
gene cloning and expression, 2399
Endo-(1,3)-β-D-glucanase
T. longibrachiatum, 177
Endo-β-*N*-acetylglucosaminidase
isolation and purification, 3107
Endoglucanase
expression in *C. thermocellum*, 2095
expression in *L. plantarum*, 2130
intergeneric protoplast fusion hybrid, 2675
Endoglucanase A
inducible secretion by *B. subtilis*, 2739
Endoglucanase C
C. fimi, 2480
Endotoxins
delta-endotoxin gene expression, 446
organic dust toxic syndrome, 1093
Enrichment conditions
chloroaromatic compound degradation, 1466
Enteric microorganisms
antibiotic resistance, 2287
detection in water, 3189
seasonal distribution, 1591

starvation-survival in seawater, 2017
Enterobacter cloacae
enumeration after chloramine exposure, 3226
hexavalent chromium reduction, 1665
Enterobacteria
oligonucleotide probes, 3250
Enterotoxins
detection, 2141
S. aureus, 1447
Enteroviruses
isolation from sewage, 503
isolation from treated effluents, 503
Enumeration
anaerobes on forages, 1766
anaerobic bacteria in pigs, 1112
Anopore and Nuclepore compared, 529
bacteria in food, 778
coliforms exposed to ozone, 33
E. cloacae after chloramine exposure, 3226
fecal coliforms in water, 1504
L. monocytogenes in foods, 1645
microbes in polluted water, 2082
microorganisms from refuse, 50
ruminal bacteria, 2789
ruminal microorganisms, 3237
S. viridis, 2669
sediment bacteria, 1214
T. ferrooxidans, 2025
total coliforms, 2443
Enzyme immunoassay
macrolide antibiotics, 1507
Enzyme-capture assays
E. coli detection, 229
Enzyme-gold complexes
polysaccharide localization in wood, 2293
Enzymes
acetic acid production, 171
anaerobic ruminal fungi, 1066
B. japonicum bacteroids, 165
culture condition effects, 689
β-glucosidase gene cloning, 3173
lignocellulose degradation, 1165
metabolite level effects, 689
methanogenesis, 2123
novel *E. coli* amidases, 2550, 2556
P. stutzeri denitrification, 1670
polyphosphate degradation, 219
polysaccharidase gene cloning, 1230
release by *L. lactis*, 3101
S. cerevisiae Crabtree effect, 468
S. cerevisiae fermentation, 1312
styrene metabolism, 2850
vegetable spoilage, 1677
Epifluorescence microscopy
biomass determination, 2762
Epithelium
lactobacillus DNA probes, 461
Equus burchelli antiquorum
microbial community of helminths, 1178
Erwinia carotovora
genetically engineered strains, 1477
Erwinia carotovora subsp. *betavasculorum*
DNA transfer frequency improvement, 934
transposon mutagenesis, 934
Erwinia spp.
gene expression in *E. coli*, 2220
Escherichia coli
adsorption of clays, 2976
air separation system for cultivation, 1305
ampicillin resistance gene, 2056
B. circulans gene expression, 568
B. fibrisolvens xylB expression, 306
B. polymyxa gene cloning, 3173
B. ruminicola xylanase gene expression, 893
Bacillus xylanase gene expression, 1192
C. perfringens-E. coli shuttle vector, 360
cellodextrinase gene expression, 132
cultivation, 1305
depuration by mussels, 1386
detection in water, 1003
2′,3′-dideoxynucleoside production, 419
drinking water analysis, 3091
endoglucanase gene expression, 2399
Erwinia gene expression, 2220
ethanol production, 1943
fed-batch fermentative culture, 1305
β-D-glucuronidase negativity, 335
H^+ ionophore effect, 1040
halotolerance, 1040
hand-washing agent efficacy, 3113
heavy metal binding, 2976
light and dormancy, 246
β-mannanase gene expression, 3178
4-methylumbelliferyl heptanoate hydrolase, 2424
penicillin amidase efficiency, 2556
penicillin amidase mutants, 2550
penicillin G acylase gene expression, 1351
plasmid transfer to *R. fredii*, 1730
rapid detection in oysters, 229
starvation-survival in seawater, 2017
survival in a rain forest, 495
survival in fresh water, 246
survival of injured cells, 1298
[^{14}C]trehalose synthesis, 2414
trichloroethylene degradation, 3162
tryptophan synthase α-subunits, 1106
Esterase
X. maltophilia, 233
Esters
synthesis by *P. pomaceus*, 1981
Estuaries
bacterioplankton regulation, 1512
copper toxicity, 43
methylotrophic methanogen, 994
polycyclic aromatic hydrocarbon degradation, 1391
Ethanol
inhibition of *C. shehatae*, 2152
methanogenesis, 440
production by *A. woodii*, 1835
production by *E. coli*, 1943
substrate for *A. woodii*, 1835
Ethanolic fermentation
C. thermocellum, 3131
K. pneumoniae, 1169
P. tannophilus, 2871, 2877
regulation in *S. cerevisiae*, 1312
yeast growth inhibition, 21
Ethylene biosynthesis
nitrogenase activity, 354
Ethylene oxide
forage sterilization, 1766
Eurasian water milfoil
colonization by fungi, 2326
Exopolysaccharide
fluorescent pseudomonads, 579
R. fredii, 813, 1852
Synechocystis mutants, 1452
Expression vectors
L. lactis subsp. *lactis*, 224

F5231
microbial transformation, 1220
Farmer's lung
S. viridis enumeration, 2669
Fatty acids
luminal fermentation kinetics, 2460
S. sucromutans, 927
V. vulnificus, 2837
Fecal bacteria
C. innocuum dehydrogenase, 1656
streptococcus monitoring, 2041
Fecal coliforms
antibiotic resistance, 2287
detection in water, 907
β-D-glucuronidase-negative *E. coli*, 335
quantitation in water, 1504
Fecal flora
elderly persons in Japan, 1100
ruminal fungal development, 2360
Fed-batch fermentation
E. coli, 1305
Fermentation
betaine, 965
cellulose, 203, 207
cellulosic substrates, 3131
E. coli cultivation, 1305
fungal growth estimation, 1044
glucose in sediments, 3234
hardwood and Avicel, 3131
K. pneumoniae, 1169
kinetics in pig lumen, 2460
L. oenos mutants, 751
population dynamics, 539
rumen, 1
S. cerevisiae, 953
xylose, 1974
yeast growth inhibition, 21
yeast hull effect, 1560
Fermentation products
anaerobic ruminal fungi, 1066
Fermentors
chloroperoxidase production, 17
Ferrous iron
oxidation at low temperatures, 312
oxidation by *T. ferrooxidans*, 1117, 2588
Ferulic acid
metabolism by micromycetes, 2391
Fibrobacter succinogenes
adhesion to cellulose, 3039
Filtration
Anopore and Nuclepore compared, 529
Fischer 344 rats
response to toxin, 2098
Fish
antivibriosis vaccine, 1400
bacterial colonization of eggs, 1435
E. ictaluri detection, 3253
V. anguillarum identification, 1907
V. anguillarum vibriosis, 826
V. salmonicida in sediments, 2815
V. salmonicida virulence, 819
Vibrio spp. and salinity, 1775
Fixatives
effects on planktonic protozoa, 1761
Flagella
M. hungatei, 1414
M. thermolithotrophicus, 1414
Flavobacterium spp.
pentachlorophenol degradation, 2113

Flavonoids
C-ring cleavage by bacteria, 1203
Fluid drilling
B. japonicum survival, 617
Fluid gels
B. japonicum survival, 617
Fluoranthene-utilizing bacteria
creosote degradation, 3085
Fluorescent pseudomonads
exopolysaccharides, 579
poly-3-hydroxyalkanoate synthesis, 1949
Fluorescently labeled bacteria
bacterial production estimation, 1787
protozoan grazing estimation, 1787
Fluoride
industrial waste nitrification, 240
4-Fluorobenzoate
new degradation pathway, 2499
3-Fluoro-substituted benzenes
defluorination by a *Pseudomonas* sp., 330
5-Fluorouracil
metabolism by *N. haematococca*, 2474
Food
bacterial adhesion to meat, 1531
botulism toxin inhibition, 2226
enumeration of bacteria, 778
L. monocytogenes enumeration, 1645
L. monocytogenes inhibition, 2802
L. monocytogenes probe, 2251
Listeria sp. detection, 599, 1925
modified-atmosphere packaging, 3012
preservation with lysozyme, 631
Forage
biodegradation by bacteria, 2247
enumeration of anaerobes, 1766
sterilization, 1766
Formaldehyde
production from methanol, 3124
Formate
diffusion in methanogenic ecosystems, 1735
oxidation by *A. putrefaciens*, 700
Fractured rock
bacteriophage transport, 2061
Frankia spp.
characteristics of bayberry isolates, 2161
diversity of bayberry isolates, 2155
Free chlorine
virucidal effectiveness, 390
Freezing
P. syringae survival, 1690
Freon 11
volatile-metabolite extraction, 1617
Fresh produce
Listeria spp., 1925
Fresh water
DNA turnover, 1823
E. coli survival, 246
Giardia cyst viability, 1223
picoplankton nutrient limitation, 1605
toxigenic vibrios, 2613
Freshwater bacteria
cellular DNA-binding sites, 2798
T-2 toxin biotransformation, 190
Frozen foods
baker's yeast cryotolerance, 2453
enumeration of bacteria, 778
Fukuyama coastal waters
seasonal distribution of pathogens, 1591
Fumarate
C. glutamicum lysine formation, 684
Fumarate reductase
M. thermoautotrophicum, 856
Fungi
anaerobic ruminal fungi, 1066
aquatic plant colonization, 2326
cultivation by ants, 1346
damping-off suppression, 2793
organic dust toxic syndrome, 2093
ozone and SO_2 effects, 412
salt stress, 1635
2-Furoic acid
degradation by *P. putida*, 1829
Furunculosis
vaccine, 1400
Fusarin C
metal effect on biosynthesis, 649
production by *F. moniliforme*, 2745
Fusarium equiseti
fusarochromanone biosynthesis, 794
fusarochromanone in feed, 3184
Fusarium graminearum
trichothecene production variation, 1315
Fusarium moniliforme
fusarin C biosynthesis, 649
fusarin C production, 2745
metal effect on growth, 649
Fusarium oxysporum
mycotoxin production, 254
Fusarium sambucinum
trichodiene synthetase regulation, 1500
Fusarium sporotrichioides
mycotoxin production, 254
trichodiene synthetase regulation, 1500
trichothecenes in liquid culture, 2190
trichothecenes in solid culture, 2195
Fusarium spp.
deoxynivalenol production, 2619
Fusarochromanone
biosynthesis, 794
occurrence in cereal feed, 3184
Fusobacterium spp.
Δ^2- and Δ^3-cholenoic acids, 2954

G4
toluene catabolism, 1624
Gadus morhua L.
bacterial colonization of eggs, 1435
Gaeumannomyces graminis
DNA probe, 284
identification, 284
β-Galactosidase
detection, 3240
Gambierdiscus toxicus
bacterial flora, 137
growth and toxicity, 137
Gamma radiation
aflatoxin B_1 inactivation, 465
Gas chromatography-mass spectrometry
nitrate reduction measurement, 2861
Gas vacuolate bacteria
isolation from Antarctic sea ice, 1033
Gastrointestinal microorganisms
luminal fermentation kinetics, 2460
porcine intestine colonization, 279
Gelatin
conversion to methane, 366
Gene transfer
E. carotovora, 934
L. lactis subsp. *lactis*, 1769
Genetic complementation
P. chrysosporium, 406
Genetic transformation
A. flavus, 86
B. cereus, 1649
B. polymyxa, 2517
C. perfringens, 360
E. carotovora, 1477
improved electroporation efficiency, 2621
L. lactis subsp. *cremoris*, 3119
L. lactis subsp. *lactis*, 604, 1769
L. paramesenteroides, 1483
marine bacteria, 1865
P. chrysosporium, 406
P. mirabilis L forms, 1009
Pseudomonas growth effects, 3243
S. cerevisiae, 2242
X. nematophilus, 806
Genetically engineered microorganisms
aerial dispersal model, 2641
detection in lake water, 2537
DNA detection in soil, 3022
fate and ecological impact, 198
fate in model environments, 771
fate in soil, 1730
monitoring, 1301
nucleic acid production, 1865
P. putida survival, 2627
survival in activated sludge, 2627
Genotype
3-chlorobenzoate catabolism, 1584
methanol dehydrogenase, 3124
Germfree mice
B. thetaiotaomicron, 2572
Giardia lamblia
cyst inactivation by chlorine, 2592
Giardia muris
cyst viability in water, 1223
Giardia spp.
cyst detection in water, 3189
Gibberella fujikuroi
immobilized mycelia, 2377
Gibberella pulicaris
trichodiene synthetase regulation, 1500
Gigaspora margarita
growth stimulation, 2320
Gliding bacteria
colonization of oysters, 1128
β(1-3,1-4)Glucanase
R. flavefaciens gene cloning, 1230
Glucose
competition by yeasts, 3214
growth of strain PA-1, 1289
metabolism by treponemes, 2365
oxidation in sediments, 3234
β-Glucose-1-phosphate
L. lactis, 1549
β-Glucosidase
gene cloning, 3173
β-D-Glucuronidase
E. coli in human fecal samples, 335
Glufosinate
degradation in soil, 711
Glycerol
production from lactose, 573
Glycine
L. lactis transformation, 3119
Glycine max
nodulation by *B. japonicum*, 1957
Glycolytic flux
regulation in *S. cerevisiae*, 1312
Gram-negative bacteria
antibiotic resistance, 2287
corky root of lettuce, 2635

2,2′-diaminopimelic acid metabolism, 212
parathion hydrolases, 289
thermoregulated plasmid marker system, 771
X. maltophilia esterase, 233
Gram-positive bacteria
2,2′-diaminopimelic acid metabolism, 212
Groundwater
detection of acinetobacters, 2214
Groundwater microcosms
nitrate reduction, 2861
Growth
bacteria in situ, 78
Growth rate
amine production, 2894
control in adherent bacteria, 1308
D. aesta, 1755
effect on starvation-survival, 1122
Guaymas basin
microbial hydrocarbon utilization, 2832
Gut flora
continuous culture, 672
significance in proteolysis, 679
Gymnodinium sp.
relationship with its prey, 2990
Gypsy moth
nuclear polyhedrosis virus, 1049, 2749
Gyrase
B. japonicum Hup^c mutants, 1157, 2843

Halibut
bacterial colonization of eggs, 1435
Halobenzoates
dehalogenation, 2773
Halophilic microorganisms
metal tolerance, 2385
Halotolerant microorganisms
E. coli, 1040
Hand disinfection
surgical scrubs, 2944
Hand-washing agents
efficacy, 3113
Haploids
baker's yeast, 1742
Hardwood kraft pulp
brightening by *C. versicolor*, 1147
Hay
Neocallimastix sp. growth, 1363
Heat injury
L. monocytogenes recovery, 1490
Heat-treated foods
enumeration of bacteria, 778
Heavy metals
adaptation of bacterial communities, 2002
bacterial sorption, 3143
binding by *B. subtilis*, 2976
binding by *E. coli*, 2976
citrate decomposition, 1375
F. moniliforme growth, 649
fusarin C biosynthesis, 649
selenium volatilization, 1406
Streptomyces spp. tolerance, 2030
tolerance in eubacteria, 2385
Helminths
microbial community, 1178
Hemagglutination
non-O1 *V. cholerae*, 2403
Hemicellulose
digestion by bacteria, 2247
Hemoglobin
P. andersonii nodules, 2046
Hen egg white lysozyme
expression in *L. lactis* subsp. *lactis*, 224
Hepatotoxins
N. spumigena, 1990
Herbicides
F5231 transformation, 1220
metolachlor metabolism, 733
Heterotrophic nitrification
A. faecalis, 2068
Hexavalent chromium
reduction by *E. cloacae*, 1665
Hippoglossus hippoglossus
bacterial colonization of eggs, 1435
Hitra disease
V. salmonicida virulence, 819
Hormogonia
Nostoc spp., 125
Host restriction
R. meliloti, 3229
hsp
localization, cloning, and expression, 1684
Human fecal samples
β-D-glucuronidase-negative *E. coli*, 335
Humic acids
biodegradation, 1282, 2843
Humus
formation, 922
hup
B. japonicum, 3051
Hydrocarbons
microbial utilization, 2832
Hydrogen
diffusion in methanogenic ecosystems, 1735
M. barkeri temperature compensation, 1262
oxidation by *A. putrefaciens*, 700
Hydrogen peroxide
aflatoxin B_1 inactivation, 465
production by *A. nidulans*, 483
pseudomonad response, 2985
Hydrogen sulfide
removal from air, 555
Hydrogenase
Azospirillum spp., 2315
B. japonicum, 3051
methanogenesis, 2123
synthesis by *B. japonicum*, 1157
Hydrolyases
production by *C. graniforme*, 2511
Hydrophobicity
adhesion to soil particles, 142
surface-active *C. albicans*, 2119
Hydroxamic acids
A. chroococcum B-8, 298
Hydroxybenzoate isomers
metabolism in aquifer slurries, 590
5-Hydroxyflavone
microbial metabolism, 3140
Hydroxylated biphenyls
bacterial metabolism, 946
Hydroxylation
5-hydroxyflavone, 3140
3-methoxy-17β-estradiol, 3029
phenol and 2,5-dichlorophenol, 2648
tetrachlorohydroquinone, 516
3β-Hydroxysteroid dehydrogenase
purification and characterization, 1656
Hypersensitive response
tobacco cells, 1724

Ice nucleation
P. syringae on oat seedlings, 1690
P. syringae on snap beans, 623
Identification
antarctic *Pseudomonas* spp., 767
enterobacteria, 3250
Frankia strains, 2161
G. graminis, 284
heme and copper nitrate reductases, 2924
L. pneumophila, 1640
lactic acid bacteria, 1617
Rhizobium isolates, 520, 707
V. anguillarum, 1907
xenobiotic-degrading pseudomonads, 1578
Immobilized cells
acid production, 185
G. fujikuroi mycelia, 2377
pentachlorophenol degradation, 2113
p-cresol degradation, 866
sugar utilization, 185
Immunoblotting
L. pneumophila detection, 1640
Rhizobium strain identification, 520
Immunocytochemical labeling
extracellular enzyme detection, 1457
Immunoelectron microscopy
X. maltophilia esterase, 233
Immunofluorescence techniques
enteric protozoan detection, 3189
Immuno-gold labeling
lignin peroxidase localization, 871
Inactivation
aflatoxin B_1, 465
L. pneumophila in water, 3045
Indicator organisms
Autoanalysis Colilert test, 2443
bacteriophages in the environment, 2696
disinfection in water, 2230
fecal streptococci, 2041
inactivation by ozone, 2949
metal-tolerant eubacteria, 2385
pigmented bacteria, 912
total heterotrophic and coliform bacteria, 380
Indigenous bacteria
effects of genetically engineered strains, 1477
Indirect immunofluorescence
rotaviruses in wastewater concentrates, 401
Inducible secretion
cellulase and *B. subtilis*, 2739
Industrial waste
extraction of zinc, 1153
nitrification, 240
Injured microorganisms
A. hydrophila, 3012
enterotoxigenic *E. coli*, 1298
enumeration in food, 778
L. monocytogenes recovery, 1490
Inocula
diallel analysis, 1599
Inoculants
B. japonicum, 2493
Rhizobium spp., 862
Rhizobium strain identification, 520
Insecticidal protein gene
expression in *Bacillus* spp., 3208
Insects
carriers of bacteria, 2200

Interference reflection microscopy
polymer physicochemical properties, 2827
Interspecies electron carriers
diffusion in methanogenic ecosystems, 1735
Intestinal microorganisms
amine production, 2894
B. thetaiotaomicron competitiveness, 2572
bile acid-desulfating bacterium, 2954
continuous culture, 672
dissimilatory nitrate metabolism, 2899
enumeration in pigs, 1112
flavonoid C-ring cleavage, 1203
increase in aging rats, 2468
microbial community in parasitic helminths, 1178
polyethylene glycol-electrolyte lavage solution effect, 1026
significance in proteolysis, 679
Ionophores
E. coli halotolerance, 1040
ruminal fermentation, 1
Iron
binding by basidiomycetes, 2720
F. moniliforme growth, 649
oxidation at low temperatures, 312
oxidation by *T. ferrooxidans*, 1117, 2588
reduction by *A. putrefaciens*, 700
reduction in sediments, 3234
Isolation procedures
Aeromonas spp. from water, 2138
antarctic *Pseudomonas* spp., 767
ant-garden fungus, 1346
chromium-reducing *E. cloacae*, 1665
endo-β-*N*-acetylglucosaminidase, 3107
enterovirus, 503
Microcystis spp., 2569
nucleic acids, 548
phenol-degrading *B. stearothermophilus*, 500
quinoline-degrading bacteria, 1029
reovirus, 503
Salmonella spp., 3032
V. vulnificus, 3072
X. maltophilia, 747
Isoquinoline
aerobic degradation, 3247
Isotopes
fractionation by sulfur bacteria, 639
Italian ryegrass hay
Neocallimastix sp. growth, 1363

K88 pili
expression of foreign DNA sequences, 984
Kanagawa phenomenon
V. parahaemolyticus growth, 1877
Killer toxins
K. lactis, 695
S. cerevisiae, 2105
Kinetics
acetate utilization, 488
p-cresol degradation, 866
denitrifying bacteria, 717
nitrate utilization, 717
O. terebriformis motility, 261
pig luminal fermentation, 2460
polymer protein degradation, 1963
pyrite oxidation, 2918
1,1,1-trichloroethane transformation, 845
D-xylose fermentation, 1169
xylose uptake, 159
Klebsiella pneumoniae
D-xylose fermentation, 1169
Klebsiella spp.
citrate decomposition, 1375
Kluyveromyces fragilis
lactose conversion to glycerol, 573
Kluyveromyces lactis
killer toxin, 695
K_m
measurement in methanogenic ecosystems, 1735

L forms
P. mirabilis, 1009
β-Lactamase
gene cloning in *E. coli*, 2056
Lactic acid bacteria
bacteriocin gene cloning, 1187
volatile-metabolite extraction, 1617
Lactobacilli
amine production in cheese, 2356
detection, 461
detection in cheese, 2356
growth in cheese, 2356
murine intestinal tract, 1848
plasmid DNA probes, 461
porcine intestine colonization, 279
Lactobacillus acidophilus
bacteriophage ϕadh, 2206
plasmid transduction, 2206
Lactobacillus bulgaricus
aminopeptidase-deficient mutants, 1717
Lactobacillus delbrueckii subsp. *bulgaricus*
acid production, 185
immobilized cells, 185
sugar utilization, 185
Lactobacillus helveticus subsp. *jugurti*
cryptic plasmid, 1653
nucleotide sequence, 1653
Lactobacillus plantarum
endoglucanase gene transfer, 2095
gene integration and expression, 2130
Lactobacillus sake
antibacterial activity, 1901
Lactobacillus spp.
crystal production on cheese, 2579
differential medium, 11
Lactococci
bacteriophage resistance, 1537, 2416
Lactococcus lactis
bacteriophage sensitivity, 2410
DNA-DNA homology, 2410
β-glucose-1-phosphate, 1549
polysaccharide formation, 1549
Lactococcus lactis subsp. *cremoris*
aminopeptidase, 2308
proteinase release, 3101
transformation by electroporation, 3119
Lactococcus lactis subsp. *lactis*
acid production, 185
electroporation, 604
foreign gene insertion, 1769
genetic transformation, 604
hen egg white lysozyme expression, 224
immobilized cells, 185
improved electroporation efficiency, 2621
peptide utilization, 2690
plasmid DNA integration, 394
reduced phage sensitivity, 2702
sugar utilization, 185
Lactoperoxidase-thiocyanate-H_2O_2 system
L. monocytogenes inhibition, 2802
Lactose
conversion to glycerol, 573
Lake Vechten
bacterial production, 1787
nitrate measurement in sediments, 754
protozoan grazing, 1787
Lake water
Giardia cyst viability, 1223
Lakes
nitrate measurement in sediments, 754
Lambda p_L and p_R promoters
differential regulation, 771
Laminarinase
T. longibrachiatum, 177
Landfills
microorganism enumeration, 50
refuse decomposition, 55
Lasalocid
ruminal fermentation, 1
S. bovis proton conductance, 259
Leaching
pyrite oxidation, 2918
zinc extraction from waste, 1153
Leaf wettability
Pseudomonas spp., 1340
Legionella pneumophila
detection, 1640
identification, 1640
inactivation by copper and silver, 3045
Legumes
epiphytic rhizobia, 2407
Leptosphaeria maculans
sirodesmin PL activity, 1555
Leuconostoc oenos
biomass production, 2488
malolactic fermentation evaluation, 2010
malolactic fermentation mutants, 751
Leuconostoc paramesenteroides
plasmid transformation, 1483
Light
A. nidulans H_2O_2 production, 483
E. coli survival in water, 246
profiles in cyanobacteria, 822
superoxide production, 7
Synechococcus cell cycle, 425
Light section microscopy
polymer physicochemical properties, 2827
Lignified stem tissues
physical degradation, 611
Lignin
degradation, 922
degradation by actinomycetes, 1642
modification by *D. desulfuricans*, 2262
Lignin peroxidase
detection in decayed wood, 1457
localization in wood degradation, 871
Lignocellulose
degradation by streptomycetes, 1165
Lindane
dehalogenation, 1258
Lipids
content estimation in yeasts, 3009
S. sucromutans growth, 927
stuck fermentations, 1560
Lipomyces starkeyi
dextranase induction, 2079
Liposomes
alkane metabolism, 269

Liquid chromatography
carotenoid profiling, 3065
Liquid culture
F. sporotrichioides, 2190
Listeria monocytogenes
egg white lysozyme effect, 631
enumeration in foods, 1645
fate in refrigerated meat, 1565
growth inhibition, 2802
polypeptide gene cloning, 2251
recovery from bovine milk, 1490
Listeria spp.
detection, 599
fresh market produce, 1925
gene probe, 902
Listonella spp.
Seto Inland Sea of Japan, 559
Lithium chloride-phenylethanol-moxalactam agar
Listeria sp. detection, 599
Longevity
dietary fiber, 1100
Ludox gradient centrifugation
B. thuringiensis protein crystals, 1279
Lymantria dispar
nuclear polyhedrosis virus, 1049, 2749
Lyme disease
birds as reservoirs, 1921
Lysine
formation by *C. glutamicum*, 684
Lysogeny
L. acidophilus ADH, 2206
Lysozyme
effect on *L. monocytogenes*, 631

Macrolide antibiotics
enzyme immunoassay, 1507
Magnesium
citrate decomposition, 1375
Maize
nitrogen-fixing bacteria, 1748
Malodorous compounds
removal from air, 555
Malolactic fermentation
L. oenos from Oregon wines, 2010
L. oenos mutants, 751
Maltose
assimilation by *L. lactis*, 1549
Manganese
binding by deep-sea bacteria, 764
F. moniliforme growth, 649
reduction by *A. putrefaciens*, 700
β-Mannanases
expression in *E. coli*, 3178
[^{14}C]Mannitol
fecal coliform detection, 907
Marine *Caulobacter* strains
mercuric reductase, 523
Marine dinoflagellates
bacterial flora, 137
growth and toxicity, 137
Marine environment
bacterial thymidine uptake, 1267
D. aesta growth rate, 1755
gas vacuolate bacteria, 1033
growth rate and starvation effects, 2710
planktonic protozoa, 1761
seasonal distribution of pathogens, 1591
starvation-survival and growth rate, 1122
Synechococcus chemotaxis, 1888
Trichodesmium N_2 fixation, 2965
V. salmonicida in sediments, 2815
Maryland soils
Free-living amoebae, 1074
Mass spectrometry
enzymes and methanogenesis, 2123
Meat
antibacterial *L. sake*, 1901
bacterial adhesion, 1531
bacterial attachment, 832
nisin and bacterial growth, 1329
refrigeration and *L. monocytogenes*, 1565
Media
A. xylinum, 1317
agarose soy casein digest medium, 106
amine detection in cheese, 2356
automated dispensing, 1320
blood agar, 106
C. cylindrosporum, 1380
cadmium resistance screening, 2101
chrome azurol S agar, 707
differentiation of *Rhizobium* isolates, 707
fecal streptococcus monitoring, 2041
L. lactis transformation, 3119
L. monocytogenes enumeration, 1645
L. oenos mutants, 751
Lactobacillus spp., 11
Listeria sp. detection, 599
Microcystis spp., 2569
Morchella sclerotium formation, 3095
P. aeruginosa selection, 3231
Pasteurella vaccine potency, 106
Rhizoctonia damping-off, 1368
robotics for dispensing, 1320
rumen fluid residue, 3237
S. viridis recovery, 2669
Salmonella spp. isolation, 3032
spore germination, 1380
trichothecene accumulation, 2190, 2195
uric acid, 1380
V. parahaemolyticus growth, 1877
V. vulnificus recovery, 3072
whey permeate, 185
X. maltophilia isolation, 747
Megasphaera elsdenii
metabolism and characteristics, 1570
Melanization
A. chroococcum aeroadaptation, 1811
Membrane filtration
Anopore and Nuclepore compared, 529
comparison with presence-absence, 507, 3091
Membrane fluidity
C. acetobutylicum, 2729
Membrane immunoassay
L. pneumophila detection, 1640
Membranes
alkane metabolism, 269
toxin binding, 2779
V. vulnificus virulence, 2837
X. maltophilia esterase, 233
yeast preservative resistance, 2995
mer
detection, 1574
mer(Tn*21*)
microbial adaptation to Hg^{2+}, 1196
Mercuric reductase
Caulobacter strains, 523
Mercury
genes that encode microbial responses, 1574
mer(Tn*21*) and microbial adaptation, 1196
microbial adaptation, 1196
volatilization by *Caulobacter* strains, 523
Metabolism
branched-chain amino acids, 2658
carbohydrates, 294
correlation with biosurfactant production, 3016
ferulic acid, 2391
flavonoids, 1203
5-fluorouracil, 2474
hydroxybenzoate isomers, 590
5-hydroxyflavone, 3140
M. elsdenii, 1570
3-methoxy-17β-estradiol, 3029
metolachlor, 733
peptides in the rumen, 2372
phenanthrene, 2275
poly(3-hydroxybutyrate), 2932
polyphosphate, 2932
solid alkanes, 269
styrene, 2850
2,6-xylenol, 2904
D-xylose, 2871
Metabolite levels
β-amylase production, 689
Metabolites
extraction from lactic acid bacteria, 1617
Metalaxyl
transformation, 66
Metals
lindane dehalogenation, 1258
microbial biofilm interactions, 1250
Metal-working fluids
microbial growth, 2681
Methane
production from gelatin, 366
Methane monooxygenase
M. trichosporium, 2819
Methanethiol
removal from air, 555
Methanobacterium thermoautotrophicum
anabolic fumarate reductase, 856
Methanococcus thermolithotrophicus
flagella, 1414
Methanococcus voltae
amino acid excretion, 1295
Methanogenesis
diffusion of electron carriers, 1735
enzymes and their roles, 2123
ethanol as substrate, 440
pig luminal fermentation, 2460
Methanogens
acetate catabolism, 514
acetate production, 2257
acetate utilization kinetics, 488
colons of aging rats, 2468
dimethyl sulfide utilization, 994
enumeration, 50
population shifts in bioreactors, 1996
refuse decomposition, 55
Methanol
oxidation by methylotrophs, 3124
Methanosarcina barkeri
batch growth, 940
coenzyme F_{420} analogs, 940
enzymes and methanogenesis, 2123
gelatin conversion to methane, 366
temperature compensation, 1262
Methanosarcina mazei
batch growth, 940
coenzyme F_{420} analogs, 940
Methanosarcina spp.
acetate utilization kinetics, 488

Methanospirillum hungatei
chemotaxis, 264
flagella, 1414
Methanothrix spp.
acetate utilization kinetics, 488
3-Methoxy-17β-estradiol
hydroxylation and dealkylation, 3029
Methylosinus trichosporium
chlorinated aliphatic hydrocarbon degradation, 2819
trichloroethylene degradation, 3155
Methylotrophs
methanol oxidation, 3124
O-Methyltransferases
aflatoxin biosynthesis, 2172
4-Methylumbelliferyl heptanoate hydrolase
production by *E. coli*, 2424
Metolachlor
sorption and metabolism, 733
Microbial density
estimation from dilution counts, 1934
Microbial movement
subsurface materials, 2280
Microcetus lappus
occurrence, 91
population fluctuations, 91
Microcolony epifluorescence microscopy
bacteria in food, 778
Microcystins
antibodies, 1928
Microcystis spp.
medium for growth, 2569
toxicity, 3202
toxin purification, 3202
Microelectrodes
nitrate gradient measurements, 754
Microorganism-root interactions
styrofoam cup-membrane study, 1291
Microsensors
denitrification in sediments, 1234
Microzonation
denitrification in sediments, 1234
Migrating birds
Lyme disease reservoirs, 1921
Migration
B. japonicum, 1711
Milk
B. cereus toxin production, 2595
L. monocytogenes inhibition, 2802
L. monocytogenes recovery, 1490
Mixed culture
2,4-D degradation, 2717
fungal growth estimation, 1044
Modified Vogel Johnson agar
Listeria sp. detection, 599
Modified-atmosphere packaging
A. hydrophila growth, 3012
Molybdenum
2-furoic acid degradation, 1829
Monensin
ruminal fermentation, 1
ruminal fungal development, 2360
sensitive ruminal bacteria, 1052
Monocentric ruminal fungi
fermentation products and enzymes, 1066
Monooxygenation
toluene catabolism, 1624
Monoxenic hairless mice
antiseptic standardization, 1911
Moraxella spp.
protocatechuate 3,4-dioxygenase, 340
Morchella crassipes
sclerotium formation, 3095
Morel fruiting bodies
sclerotium formation, 3095
Mosquitocidal toxin genes
A. quadruplicatum expression, 2428
expression in *B. subtilis*, 252
Most-probable-number technique
P. betae detection, 1273
ruminal bacterium counting, 2789
Motility
aeromonads, 543
B. japonicum competitiveness, 1895
M. hungatei, 264
O. terebriformis, 261
Movement
subsurface bacteria, 2280
msp
L. monocytogenes probe, 2251
Mucuna pruriens
temperature and aflatoxin production, 531
Municipal waste
biodegradation potential, 433
methane production, 366
Murine intestinal tract
bile salt hydrolase, 1848
lactobacilli, 1848
Mussels
depuration, 1386
Mycelia
G. fujikuroi, 2377
Mycelial pellets
chloroperoxidase production, 17
Mycobacterium spp.
polycyclic aromatic hydrocarbon degradation, 1968
Mycoplasmas
pH-controlled cultivation, 852
Mycotoxins
biotransformation, 190
F. oxysporum, 254
F. sporotrichioides, 254
fusarin C, 2745
fusarochromanone, 794, 3184
TDP-2, 794
Myrica pensylvanica
characteristics of *Frankia* strains, 2161
diversity of *Frankia* strains, 2155
Myriophyllum spicatum L.
colonization by fungi, 2326
Mytilus edulis
depuration, 1386

NADH recycling
T. hyodysenteriae, 2365
Naegleria fowleri
density and distribution, 722
thermal addition effects, 722
Naphthalene
biotransformation, 1391
Nectria haematococca
5-fluorouracil metabolism, 2474
Neocallimastix frontalis
xylanase production, 1016
Neocallimastix spp.
growth on ryegrass hay, 1363
Neurotoxins
formation regulation, 1544
Neutral sugars
Neocallimastix sp. growth, 1363
Nickel
effects on *P. saccharophila*, 3197
transport by *A. kivui*, 1078
nifH
amplification in *T. thiebautii*, 2522
Nisin
bacteria attached to meat, 1329
Nitrate
ammonification in sediment, 1841
measurement in sediments, 754
reduction by *P. acnes*, 2899
reduction in groundwater microcosm, 2861
utilization kinetics, 717
Nitrification
A. faecalis, 2068
concentrated industrial waste, 240
Nitrilotriacetate
cadmium resistance screening, 2101
3-Nitrobenzenesulfonate
bacterial carbon source, 492
Nitrogen
cytoplasmic pools and salt stress, 1635
Nitrogen fixation
B. japonicum and soybeans, 1711
bacteria on maize roots, 1748
cyanobacteria, 758, 882
improvement of *Rhizobium* inoculants, 862
P. saccharophila, 3197
profiles in cyanobacteria, 882
T. thiebautii nifH gene, 2522
Trichodesmium aggregates, 2965
Nitrogenase
estimation in ethylene biosynthesis, 354
Trichodesmium aggregates, 2965
Nitrosovibrio spp.
ammonia oxidation, 2108
nod
expression in soil bacteria, 1426
Nodularia spumigena
occurrence in the Baltic Sea, 1990
toxin structure, 1990
Nodulation
B. japonicum, 1711, 1895, 2493
Bradyrhizobium strains, 1242, 1957, 2532, 3000
Parasponia andersonii, 1242, 2046
R. leguminosarum strains, 2755
R. meliloti and stress, 2431
Nodulation genes
expression in soil bacteria, 1426
Nostoc spp.
hormogonia formation, 125
Nuclear magnetic resonance
C. tropicalis xylose fermentation, 1974
5-fluorouracil metabolism, 2474
PHB and polyphosphate metabolism, 2932
yeast lipid estimation, 3009
Nuclear polyhedrosis virus
detection in moth larvae, 2749
potential effects on human health, 1916
replication in cell lines, 1049
Nucleic acids
isolation from aquatic environs, 548
production in aquatic environs, 1865
Nucleotides
L. helveticus subsp. *jugurti*, 1653
Nuclepore polycarbonate membrane filter
comparison with Anopore, 529
Nutrient limitation
E. coli, 2424

picoplankton, 1605
Nutrients
chlorination effectiveness, 29
Nutritional assays
amine production, 2894
D. aesta growth rate, 1755
L. bulgaricus, 1717
M. crassipes, 3095
S. sucromutans, 927

O dealkylation
3-methoxy-17β-estradiol, 3029
Oat plants
P. syringae survival, 1690
Octanoic acid
yeast growth inhibition, 21
Oil
biodegradation, 36
Oncorhynchus mykiss
"*Cytophaga psychrophila*" studies, 1796
Oocysts
C. parvum disinfection, 1519
detection in water, 3189
Ophthalmic solutions
Acanthamoeba viability, 1144
Organic acid anions
S. wolfei growth and metabolism, 977
Organic dust toxic syndrome
bacteria, fungi, and endotoxin, 1093
Oscillatoria terebriformis
chemokinetic motility responses, 261
Osmoregulation
E. coli starvation-survival, 2017
R. meliloti, 2431
Ostreopsis lenticularis
bacterial flora, 137
growth and toxicity, 137
Outer membrane proteins
enterobacteria, 3250
Ovalbumin
A. protophormiae growth, 3107
Ovine rumen
ruminal fungi, 1695, 1703
Oxidation
ferrous iron, 312
pyrite, 2918
vanillin, 1660
Oxygen
consumption by ruminal microorganisms, 2583
production by cyanobacteria, 822
Oxygenases
trichloroethylene degradation, 2960
Oysters
detection of *E. coli*, 229
V. cholerae agglutination, 2882
V. vulnificus survival, 3072
Ozone
coliforms, 33
disinfection of flowing water, 2949
drinking water disinfection, 1519
effects on phyllosphere fungi, 412

p9B4-6
bacteriocin gene cloning, 1187
PA-1
growth with glucose or succinate, 1289
Pachysolen tannophilus
genetics and biochemistry, 2871
D-xylose metabolism, 2871
D-xylose reductase mutant, 2877
Pacific oysters
bacterial colonization, 1128
Paecilomyces variotii
ferulic acid metabolism, 2391
pAJ1106
bacteriophage resistance, 1537
Parasponia andersonii
hemoglobin in nodules, 2046
nodulation by *Bradyrhizobium* spp., 1242
root nodule bacteria, 2046
Parathion hydrolase
purification and characterization, 289
Partial oxygen pressure
N_2 fixation on maize roots, 1748
Pasteurella vaccines
potency determination, 106
pBR322
bacterial carriers in cutworms, 2200
Pectate lyases
vegetable spoilage, 1677
Pectin
digestion by bacteria, 2247
Pectin lyase
P. italicum, 1612
Pellicle
disinfectant testing, 511
Penicillin amidase
E. coli, 2550, 2556
Penicillin G acylase
expression of gene, 1351
Penicillium italicum
pectin lyase production, 1612
Penicillium spp.
zinc extraction from waste, 1153
Pentachlorophenol
biodegradation, 2113
Peptides
expression in K88 pili, 984
metabolism, 2372
utilization by *L. lactis*, 2690
Peptostreptococci
branched-chain-amino-acid transport, 2658
Peridroma saucia
pBR322-bearing bacteria, 2200
PEROXONE
drinking water disinfection, 2230
Pestalotia palmarum
ferulic acid metabolism, 2391
pGBK17
reduced phage sensitivity, 2702
pH
amine production, 2894
C. botulinum toxin production, 656
L. oenos biomass production, 2488
mycoplasma cultivation, 852
R. meliloti maintenance, 1870
Phaffia rhodozyma
astaxanthin content, 116
Phanerochaete chrysosporium
humic acid degradation, 1282
lignin peroxidase localization, 871
polycyclic aromatic hydrocarbon degradation, 154
transformation by complementation, 406
wood degradation, 871
Phaseolus vulgaris L.
P. syringae diel variation, 623
Phellinus pomaceus
anisole and ester biosynthesis, 1981
Phenanthrene
biotransformation, 1391
metabolism by *C. elegans*, 2275
1,10-Phenanthroline
P. aeruginosa selection, 3231
Phenol
degradation by *B. stearothermophilus*, 500
hydroxylation by *P. putida*, 2648
Phenol hydroxylase
B. stearothermophilus, 500
Phenotype
"*Cytophaga psychrophila*" from trout, 1796
DNA superhelicity role, 1420
Rbs$^+$ *L. lactis*, 2410
Sonoran Desert rhizobia, 3058
switching in *X. luminescens*, 1136
V. anguillarum plasmids, 826
xylanase gene hyperexpression, 1192
2-Phenylethanol
metabolism, 2850
Phosphinothricin
degradation in soil, 711
Phospholipid analysis
biomass determination in sediments, 2888
Phospholipid fatty acids
bacteria that suppress damping-off, 1368
Phosphotransbutyrylase
C. acetobutylicum acidogenesis, 317
Photochemical degradation
humic acid-bound molecules, 2843
Photodiode array detection
carotenoid profiling, 3065
Photosynthesis
profiles in cyanobacteria, 882
Phototrophic bacteria
growth and viability, 78
Phycoerythrin
nitrogen-fixing cyanobacterium, 758
Phyllosphere
Pseudomonas spp., 1340
Phyllosphere fungi
ozone and SO_2 effects, 412
Phylogenetic analysis
selective recovery of 16S rRNA, 1818
Physiological diversity
aerobic chemoheterotrophic bacteria, 1058
Phytopathogens
corky root of lettuce, 2635
P. syringae and apples, 533
Phytoplankton
nutrient limitation, 1605
Phytotoxins
sirodesmin PL, 1555
Pichia heedii
xylose uptake, 159
Pichia stipitis
xylose uptake, 159
Picoplankton
nutrient limitation, 1605
Pigmented bacteria
potable water, 912
Pigments
astaxanthin, 116
canthaxanthin production, 2505
profiling and quantitation, 3065
Pigs
antibiotic-resistant bacteria, 2287
enumeration of anaerobic bacteria, 1112
intestinal colonization by lactobacilli, 279
luminal fermentation kinetics, 2460

Pili
foreign DNA sequence expression, 984
Planktonic microorganisms
marine protozoa, 1761
regulation in estuaries, 1512
Plant cell walls
degradation by ruminal fungi, 1066
Neocallimastix sp. growth, 1363
Plant pathogens
corky root of lettuce, 2635
hydrogen peroxide resistance, 2985
P. syringae and apples, 533
Rhizoctonia damping-off, 1368, 2793
Plant-associated fluorescent pseudomonads
exopolysaccharides, 579
Plasmid profiles
R. leguminosarum diversity, 109
Plasmids
antibiotic resistance, 2344
aromatic hydrocarbon utilization, 1523
B. polymyxa transformation, 2517
bacterial starvation-survival, 1860
bacteriocin plasmid gene cloning, 1187
bacteriophage resistance, 1537
chlorobenzene degradation, 1037
DNA integration by *L. lactis*, 394
E. coli to *R. fredii*, 1730
E. ictaluri, 3253
L. helveticus subsp. *jugurti*, 1653
L. lactis peptide utilization, 2690
L. paramesenteroides, 1483
lactobacillus DNA probes, 461
Pseudomonas growth effects, 3243
pSS50 characteristics, 1286
R. fredii exopolysaccharide production, 813
R. fredii symbiotic effectiveness, 813
S. ruminantium, 3035
thermoregulated plasmid marker system, 771
transduction in *L. acidophilus*, 2206
V. anguillarum phenotypes, 826
V. salmonicida virulence, 819
Plastics
poly-β-hydroxybutyrate, 1334, 2932
Plating efficiency
S. acidocaldarius, 3020
Pleomorphism
B. japonicum, 666
pMAH5
β-mannanase gene in *E. coli*, 3178
Polioviruses
depuration by mussels, 1386
inactivation by ozone, 2949
Pollutants
biodegradation, 1578
detection of genes that encode microbial responses, 1574
interactions during degradation, 3221
polycyclic aromatic hydrocarbons, 154
Poly(3-hydroxybutyrate)
metabolism by *A. eutrophus*, 2932
Poly-3-hydroxyalkanoates
synthesis by fluorescent pseudomonads, 1949
Poly-β-hydroxyalkanoic acid
P. cepacia, 584
Poly-β-hydroxybutyrate
production by *A. vinelandii*, 1334
Polycentric ruminal fungi
fermentation products and enzymes, 1066
Polychlorinated biphenyls
adsorption-desorption, 3150
degradation, 798
Polychlorophenols
degradation, 516
Polyclonal antibodies
denitrifying bacteria, 2924
Polycyclic aromatic hydrocarbons
degradation, 154, 1391, 1968, 3085
Polyethylene glycol-electrolyte lavage solution
effect on intestinal microflora, 1026
Polymers
Aroclor 1254 adsorption, 3150
Polymorphism
X. luminescens, 1136
Polymyxa betae
detection in soil, 1273
Polyphosphate
enzymatic degradation, 219
metabolism by *A. eutrophus*, 2932
Polysaccharides
L. lactis, 1549
localization in wood, 2293
utilization by *B. thetaiotaomicron*, 2572
Polyurethane
pentachlorophenol degradation, 2113
Polyvinyl alcohol degradation
Pseudomonas sp. strain VM15C, 275
Population dynamics
intestinal bacteria, 672
M. lappus, 91
methanogens in bioreactors, 1996
P. syringae diel variation, 623
wine fermentation, 539
Population ecology
R. leguminosarum bv. *trifolii*, 959
Population structure
activated sludge system, 897
Porcine gastrointestinal tract
colonization by lactobacilli, 279
Porphyridium sp.
relationship with its predator, 2990
Porphyrins
lindane dehalogenation, 1258
Potable water
pigmented bacteria, 912
Potassium
S. bovis proton conductance, 259
Potatoes
C. botulinum toxin production, 656
Potency
Pasteurella vaccines, 106
Poultry
tibial dyschondroplasia, 3184
Prechilling
enumeration of microorganisms, 50
Predation
algal culture contamination, 2990
Presence-absence technique
comparison with defined substrate method, 1003
comparison with membrane filtration, 507, 3091
Preservatives
nisin and bacteria on meat, 1329
Pressure
manganese binding by bacteria, 764
Principal-component analysis
baker's yeast characteristics, 1495
Prochymosin
production by *P. mirabilis*, 1009
Produce
Listeria spp., 1925
Propane-oxidizing bacteria
trichloroethylene degradation, 2960
Propionibacterium acnes
dissimilatory nitrate reduction, 2899
Proteases
formation regulation, 1544
Protein crystals
B. thuringiensis spores, 1279
Proteinases
release by *L. lactis*, 3101
Proteins
degradation by sediment community, 1963
Proteolysis
intestinal bacteria, 679
Proteus mirabilis
activable bovine prochymosin, 1009
genetically engineered L forms, 1009
Protocatechuate 3,4-dioxygenase
Moraxella sp. strain GU2, 340
Proton conductance
S. bovis, 259
Protoplast fusion
B. subtilis-Cellulomonas sp., 2675
Protozoa
fixation and cell volume, 1761
M. lappus, 91
response to bacteria in soil, 1857
rumens of cattle and bison, 148
Protozoan grazing
estimation in Lake Vechten, 1787
Pseudomonas aeruginosa
benzalkonium chloride resistance, 2036
biosurfactant production, 3016
recombinant plasmid effects, 3243
selective medium, 3231
soil and rhizosphere growth, 3243
Pseudomonas alcaligenes
DNA identification in *P. putida*, 1037
Pseudomonas cepacia
poly-β-hydroxyalkanoic acid production, 584
Pseudomonas fluorescens
cyanate utilization, 256
polymer physicochemical properties, 2827
Pseudomonas pellicle
disinfectant testing, 511
Pseudomonas putida
acetonitrile degradation, 2267
aromatic hydrocarbon utilization, 1523
4-chlorobiphenyl degradation, 798
DNA from *P. alcaligenes*, 1037
2-furoic acid degradation, 1829
phenol hydroxylation, 2648
recombinant plasmid effects, 3243
soil and rhizosphere growth, 3243
survival in a sludge unit, 2627
toluene dioxygenase gene, 3162
trichloroethylene toxicity, 2723
Pseudomonas saccharophila
nickel effects, 3197
Pseudomonas spp.
aniline degradation, 385
p-chlorotoluene degradation, 372
p-cresol degradation, 866
cytochrome reduction, 275
detection in lake water, 2537
3-fluoro- aromatic defluorination, 330
hydrogen peroxide resistance, 2985
isolation from an antarctic oasis, 767

leaf wettability, 1340
polyvinyl alcohol degradation, 275
xenobiotic degradation, 1578
Pseudomonas stutzeri
denitrification enzyme expression, 1670
Pseudomonas syringae
diel population size variation, 623
ice nucleation activity, 623
influence on tobacco cells, 1724
survival after freezing, 1690
Pseudomonas syringae pv. *syringae*
apple leaf and blossom invasion, 533
pSS50
characteristics and restriction analysis, 1286
Psychrophiles
growth rate and starvation effects, 2710
starvation-survival and ANT-300, 1122
pTR2030
bacteriophage resistance, 1684, 2416
Purple sulfur bacteria
carbon isotope fractionation, 639
pVS8
L. lactis peptide utilization, 2690
pWW0
minireview, 1323
Pyrite
oxidation by *T. ferrooxidans*, 2918
Pyrococcus furiosus
continuous culture, 2086
Pyrroloquinoline quinone
production by bacteria, 1209
Pseudomonas cytochrome reduction, 275

Quinoline-degrading bacteria
isolation and characterization, 1029
Quinone profiles
activated sludge system bacteria, 897

Radiation
aflatoxin B_1 inactivation, 465
Rain forest watershed
E. coli survival, 495
V. cholerae survival, 495
Rainbow trout
antivibriosis vaccine, 1400
"*Cytophaga psychrophila*" studies, 1796
V. salmonicida virulence, 819
Rapid sand filter gravel
chlorination, 29
Rats
colonic bacterium increase, 2468
response to toxin, 2098
Recombinant proteins
insoluble aggregates, 1106
Reducing agents
superoxide production, 7
Refrigeration
meat and *L. monocytogenes*, 1565
Refuse
bacterial population development, 55
decomposition characteristics, 55
enumeration of microorganisms, 50
Relatedness
denitrifying bacteria, 2924
Reoviruses
isolation from sewage, 503
isolation from treated effluents, 503
Resistance
B. licheniformis and antibiotics, 3026
B. subtilis and antibiotics, 3026
C. reinhardtii and cadmium, 526
cadmium resistance screening, 2101
E. cloacae and chromium, 1665
E. coli and ampicillin, 2056
eubacteria and heavy metals, 2385
M. voltae amino acid excretion, 1295
pseudomonads and H_2O_2, 2985
yeasts and preservatives, 2995
Resistance mechanisms
bacteriophage resistance determinants, 1684
conjugative plasmid pTR2030, 2416
industrial bacteriophages, 1537
lactococci, 1537
P. aeruginosa and disinfectants, 2036
S. typhimurium, 2344
yeast preservative resistance, 2995
Restriction analysis
Frankia strains, 2161
pSS50, 1286
Restriction modification
bacteriophage resistance, 2416
Rhizobium fredii
exopolysaccharide production, 813
exopolysaccharide-deficient mutants, 1852
plasmid transfer from *E. coli*, 1730
symbiotic effectiveness, 813
Rhizobium leguminosarum biovar *phaseoli*
competitiveness, 2755
Rhizobium leguminosarum biovar *trifolii*
competition among strains, 1599
diallel analysis of competition, 1599
differentiation of isolates, 707
nodulation genes, 1426
P. andersonii nodules, 2046
population size and distribution, 959
Rhizobium leguminosarum biovar *viceae*
diversity within serogroups, 109
Rhizobium meliloti
acid tolerance, 1870
host restriction and transduction, 3229
intracellular pH maintenance, 1870
water stress responses, 2431
Rhizobium spp.
epiphytic occurrence, 2407
identification of strains, 520
improvement of inoculants, 862
Sonoran Desert populations, 3058
Rhizoctonia spp.
damping-off suppression, 1368
Rhizosphere
A. caulinodans survival, 454
damping-off suppression, 1368
fungal disease repression, 2793
N_2 fixation on maize roots, 1748
recombinant *Pseudomonas* growth, 3243
surfactant biodegradation, 2092
X. maltophilia isolation, 747
Rhodococcus spp.
tetrachlorohydroquinone degradation, 516
Rice
A. caulinodans survival, 454
River water
Giardia cyst viability, 1223
Robotics
use to dispense culture media, 1320
Roots
detection of fungi, 761
microbial interactions, 1291
N_2 fixation on maize roots, 1748

Rotaviruses
hand-washing agent efficacy, 3113
wastewater ultrafiltration concentrates, 401
rRNA, 16S
selective recovery as cDNA, 1818
V. anguillarum identification, 1907
Ruminal microorganisms
adherence to cellulose, 2089
ammonia-producing bacteria, 1052
branched-chain-amino-acid transport, 2658
cellulolytic bacteria, 148
culture media, 3237
2,2′-diaminopimelic acid metabolism, 212
enumeration, 2789
F. succinogenes adhesion, 3039
forage degradation, 2247, 3080
fungi, 1066, 1695, 1703
fungi and monensin, 2360
growth on cellobiose, 1695
growth on cellulose and straw, 1703
inducible bacteriophages, 1630
ionophores and fermentation, 1
lasalocid-catalyzed proton conductance, 259
M. elsdenii, 1570
M. lappus, 91
monensin-sensitive bacteria, 1052
monocentric and polycentric fungi, 1066
Neocallimastix sp. growth, 1363
oxygen consumption, 2583
peptide metabolism, 2372
protozoa, 148
S. ruminantium plasmid, 3035
sodium efflux, 2664
stem tissue degradation, 611
xylanase production, 1016
Ruminococcus albus
forage degradation, 3080
Ruminococcus flavefaciens
gene cloning, 1230

Saccharomonospora viridis
improved recovery medium, 2669
Saccharomyces cerevisiae
α-amylase gene expression, 3167
Crabtree effect analysis, 468
ethanol production regulation, 1312
glucose competition, 3214
glycolytic flux regulation, 1312
haploids from industrial strains, 1742
K1 toxin, 2105
sluggish and stuck fermentation, 953
sugar transport inactivation, 953
transformation by electroporation, 2242
Saccharomyces spp.
baker's yeast, 1495
desirable characteristics, 1495
Salinity
effects on cytoplasmic C and N, 1635
survival of *Vibrio* spp., 1775
Salmo gairdneri
antivibriosis vaccine, 1400
"*Cytophaga psychrophila*" studies, 1796
V. salmonicida virulence, 819
Salmo salar
V. salmonicida virulence, 819
Salmonella spp.
isolation from coastal waters, 3032
seasonal distribution, 1591

zooplankton role in distribution, 1591
Salmonella typhimurium
multiple antibiotic resistance, 2344
Scanning electron microscopy
P. syringae and apples, 533
Schirmacher Oasis, Antarctica
Pseudomonas spp., 767
Schwanniomyces occidentalis
α-amylase gene cloning, 3167
Sclerotia
formation and maturation, 3095
Seawater
E. coli enzyme production, 2424
E. coli starvation-survival, 2017
fecal streptococcus monitoring, 2041
Secondary carbon sources
aniline degradation, 385
Secondary production
vascular plant detritus, 2178
Secreted polypeptides
L. monocytogenes, 2251
Sediments
aerobic chemoheterotrophic bacteria, 1058
biomass determination, 2888
chloroaromatic compound degradation, 1466, 1472
denitrification, 1841
denitrification microzonation, 1234
dichloroaniline degradation, 2527
2,4-dichlorophenol degradation, 348, 2735
enumeration of bacteria, 1214
glucose oxidation, 3234
iron reduction, 3234
nitrate ammonification, 1841
nitrate gradient measurements, 754
polycyclic aromatic hydrocarbon degradation, 1391
protein degradation, 1963
quinoline-degrading bacteria, 1029
selenate reduction to selenium, 2333
V. salmonicida, 2815
Seeds
M. pruriens aflatoxins, 531
Selenate
reduction to elemental selenium, 2333
Selenium
selenate reduction in sediment, 2333
volatilization, 1406
Selenomonas ruminantium
plasmid characterization, 3035
Sensitivity
B. japonicum and DNA gyrase inhibitors, 1157
L. lactis and phages, 2702
uptake hydrogenase, 2315
Sequential washing
enumeration of microorganisms, 50
Serratia marcescens
vanillic acid production, 1660
Sesbania rostrata
A. caulinodans survival, 454
Seto Inland Sea, Japan
C. botulinum, 559
Listonella spp., 559
Vibrio spp., 559
Seven-hour membrane filter test
fecal coliform enumeration, 1504
Sewage effluent
depuration by mussels, 1386
Sewage sludge
biodegradation potential, 433
virus isolation, 503
Shuttle vectors
E. coli-C. perfringens, 360
Siderophores
A. chroococcum B-8, 298
basidiomycetes, 2720
hydroxamic acids, 298
Silage
organic dust toxic syndrome, 1093
Silver
L. pneumophila disinfection, 3045
Sirodesmin PL
antibacterial activity, 1555
Snap beans
P. syringae diel variation, 623
Sodium
branched-chain-amino-acid transport, 2658
efflux from *S. bovis*, 2664
Sodium ions
A. chroococcum aeroadaptation, 1811
D. aesta growth rate, 1755
Sodium lactate
botulism toxin inhibition, 2226
Soft contact lenses
Acanthamoeba viability, 1144
Soft rot bacteria
spoilage of vegetables, 1677
Soil
A. caulinodans survival, 454
antarctic *Pseudomonas* spp., 767
B. japonicum competitiveness, 1895
bacterial adhesion, 142
bacteriophage transport, 2061
biomass C and N changes, 1635
denitrification, 72
engineered-DNA detection, 3022
free-living amoebae, 1074
glufosinate degradation, 711
in situ plasmid transfer, 1730
P. betae detection, 1273
phage-transduced bacteria, 661
phosphinothricin degradation, 711
R. leguminosarum populations, 959
recombinant *Pseudomonas* growth, 3243
X. maltophilia isolation, 747
Soil bacteria
corky root of lettuce, 2635
creosote degradation, 3085
heavy metal sorption, 3143
isoquinoline degradation, 3247
protozoan response, 1857
Rhizobium nodulation gene expression, 1426
semiarid high desert, 2420
T-2 toxin biotransformation, 190
Soil-core microcosms
genetically engineered microorganisms, 198
Soil denitrification
stochastic models, 72
Soil depth
R. leguminosarum population size, 959
Solar energy
A. nidulans H_2O_2 production, 483
Solid culture medium
F. sporotrichioides, 2195
Solubilization
recombinant proteins, 1106
Solvents
C. acetobutylicum mutants, 970
Sonoran Desert
woodland rhizobia, 3058
Sorghum
Fusarium isolates, 2619
Sorption
heavy metals, 3143
metolachlor, 733
Soybeans
B. japonicum in fluid gels, 617
B. japonicum migration, 1711
B. japonicum occupancy, 2493
effects on *B. japonicum*, 2532
nodulation by *B. japonicum*, 1957
Spheroplasts
K1 toxin effects, 2105
Spoilage
soft rot bacteria, 1677
Spores
A. fumigatus from sawmills, 2856
B. thuringiensis protein crystals, 1279
C. botulinum, 2226
C. cylindrosporum, 1380
Sporidiobolus salmonicolor
γ-decalactone production, 2939
Staphylococci
physicochemical surface properties, 2806
Staphylococcus aureus
enterotoxin A production, 1447
Starch digestion
B. stearothermophilus, 1639
Starvation-survival
E. coli in seawater, 2017
growth rate effects, 1122
plasmid expression and maintenance, 1860
psychrophilic marine bacterium, 1122, 2710
Statistical analysis
baker's yeast characteristics, 1495
Stem tissues
physical degradation, 611
Stenocereus gummosus
D. mojavensis ecology, 100
microbial colonization, 100
Sterilization
forages, 1766
Strain PA-1
growth with glucose or succinate, 1289
Straw
utilization by ruminal fungi, 1703
Stream sediments
denitrification microzonation, 1234
Streptococcus bovis
proton conductance, 259
sodium efflux, 2664
Streptococcus salivarius subsp. *thermophilus*
acid production, 185
immobilized cells, 185
sugar utilization, 185
Streptomyces fulvissimus
5-hydroxyflavone metabolism, 3140
Streptomyces reticuli
mycelium-associated cellulase, 2653
Streptomyces spp.
heavy metal effects, 2030
lignocellulose degradation, 1165
Stressed microorganisms
R. meliloti nodulation, 2431
Stuck fermentation
S. cerevisiae, 953
yeast hull effect, 1560
Styrene oxide
metabolism, 2850

Styrofoam cup-membrane assembly
microorganism-root interactions, 1291
Submerged cultures
F. moniliforme, 649
Subsurface materials
microbial movement, 2280
Succinate
growth of strain PA-1, 1289
Sugar
E. coli ethanol production, 1943
utilization by free and entrapped cells, 185
Sugar transport inactivation
S. cerevisiae, 953
Suicide phenomenon
motile aeromonads, 543
Sulfate reduction
2,4-dichlorophenol degradation, 2735
Sulfate-reducing bacteria
D. salexigens, 645
Sulfation
5-hydroxyflavone, 3140
Sulfolobus acidocaldarius
plating efficiency, 3020
Sulfonated aromatic compounds
bacterial carbon sources, 492
Sulfur bacteria
carbon isotope fractionation, 639
Sulfur dioxide
effects on phyllosphere fungi, 412
Superhelicity
Bradyrhizobium DNA, 1420
Superoxide
production by altertoxins, 7
Surface-active *Pseudomonas* spp.
leaf wettability, 1340
Surfaces
bacterial adhesion to meat, 1531
heavy metal binding, 2976
staphylococcal cell adherence, 2806
surface-active *C. albicans*, 2119
Surfactants
biodegradation, 2092
Surgical scrubs
evaluation, 2944
Survival
A. caulinodans, 454
B. japonicum in fluid gels, 617
bacteria in aquatic environments, 788
C. parvum oocysts, 1519
3-chlorobenzoate-catabolic genotype, 1584
E. coli in a rain forest, 495
E. coli in fresh water, 246
engineered *P. putida*, 2627
genetically engineered *E. carotovora*, 1477
injured *E. coli*, 1298
P. syringae after freezing, 1690
psychrophilic marine bacterium, 1122
V. cholerae in a rain forest, 495
V. vulnificus, 2837
V. vulnificus in oysters, 3072
Vibrio spp. and salinity, 1775
Swine dysentery
T. hyodysenteriae, 2365
Symbiosis
dicarboxylate role, 666
Nostoc hormogonia formation, 125
R. fredii mutants, 1852
R. fredii plasmids, 813
Syncephalastrum racemosum
metalaxyl transformation, 66
Synechococcus spp.
chemotaxis, 1888
light and the cell cycle, 425
Synechocystis spp.
exopolysaccharide mutants, 1452
Synergism
forage digestion, 2247
Syntrophic metabolism
S. wolfei, 977
Syntrophococcus sucromutans
fatty acid and aldehyde composition, 927
Syntrophomonas wolfei
growth and metabolism, 977
organic acid anion effects, 977

T-2 toxin
biotransformation, 190
detoxification, 190
Take-all fungus
DNA probe, 284
identification, 284
Temperature
aflatoxin production, 531
B. cereus toxin production, 2595
compensation by *M. barkeri*, 1262
2,4-dichlorophenol degradation, 348
effect on *C. shehatae*, 2152
ferrous iron oxidation, 312
lactococcal bacteriophage resistance, 1537
V. vulnificus in oysters, 3072
Tetrachloroethylene
reductive dechlorination, 2144
Tetrachlorohydroquinone
hydroxylation and dechlorination, 516
Tetrachloromethane
biotransformation, 837
Thermal additions
pathogenic *Naegleria fowleri*, 722
thermophilic amoebae, 722
Thermophiles
A. kivui nickel transport, 1078
amoebae, 722
autotrophic sulfur bacteria, 639
B. stearothermophilus amylase, 1638
Beggiatoa spp., 2909
C. thermosulfurogenes β-amylase, 689
denitrifying *Bacillus* sp., 1023
Thiobacillus ferrooxidans
detection and enumeration, 2025
ferrous iron oxidation inhibition, 1117
iron oxidation inhibition, 2588
pyrite oxidation, 2918
Thiobacillus thioparus TK-m
malodorous-compound removal, 555
Threshold selection
biomass determination, 2762
Thymidine
bacterial production estimation, 1787
bacterial uptake, 1267
protozoan grazing estimation, 1787
Tibial dyschondroplasia
fusarochromanone, 3184
Tobacco
P. syringae influence, 1724
TOL plasmids
minireview, 1323
Toluene
catabolism by G4, 1624
degradation, 330
Toluene dioxygenase
3-fluoro- aromatic defluorination, 330
gene expression in *E. coli*, 3162
phenol hydroxylation, 2648
trichloroethylene toxicity, 2723
Topography
R. leguminosarum diversity, 109
Total coliform bacteria
detection and enumeration, 2443
determination in water, 3091
public water supply, 380
Total heterotrophic bacteria
public water supply, 380
Toxins
anthrax lethal toxin, 2098
B. cereus in milk, 2595
binding to cell membranes, 2779
C. botulinum in potatoes, 656
enterotoxin A, 1447
K. lactis killer toxin, 695
Microcystis spp., 3202
N. spumigena hepatotoxin, 1990
regulation in *C. botulinum*, 1544, 2226
S. cerevisiae K1 toxin, 2105
Transduction
L. acidophilus ADH, 2206
R. meliloti, 3229
soil bacteria, 661
Transformation
F5231, 1220
Transmission electron microscopy
lignin peroxidase localization, 871
Transposon mutagenesis
E. carotovora, 934
Trehalose
baker's yeast cryotolerance, 2453
synthesis by *E. coli*, 2414
Treponema hyodysenteriae
glucose metabolism, 2365
NADH recycling, 2365
1,2,4-Triazole-3-alanine
M. voltae amino acid excretion, 1295
1,1,1-Trichloroethane
biotransformation, 837, 845
Trichloroethylene
biodegradation, 2819, 2960, 3155, 3162
degradation by G4, 1624
reductive dechlorination, 2144
toxicity to *P. putida*, 2723
Trichloromethane
biotransformation, 837
Trichoderma longibrachiatum
endo-(1,3)-β-D-glucanase, 177
Trichoderma reesei
growth estimation method, 1044
Trichodesmium spp.
nitrogenase localization, 2965
Trichodesmium thiebautii
nifH amplification, 2522
Trichodiene synthetase
regulation in fungi, 1500
Trichothecenes
accumulation in liquid culture, 2190
accumulation in solid culture, 2195
biotransformation, 190
production by *F. graminearum*, 1315
trichodiene synthetase regulation, 1500
Trimethylamine
methylotrophic methanogen, 994
Tropical rain forest watershed
E. coli survival, 495
V. cholerae survival, 495
trpC
cloning and characterization, 2561

Tryptophan synthase mutant α-subunits
aggregate solubilization, 1106
Turkey products
botulism toxin inhibition, 2226

Ultrafiltration
rotaviruses in wastewater concentrates, 401
Ultrasound
biomass determination, 1801
Ultrastructure
archaebacterial flagella, 1414
Unsaturated subsurface soil
soil bacteria, 2420
Uptake hydrogenase
Azospirillum spp., 2315
Upwelling environment
bacterial thymidine uptake, 1267
Uric acid
Clostridium spore germination, 1380

Vaccines
Pasteurella vaccine potency, 106
vibriosis and furunculosis, 1400
Vanillic acid
production by *S. marcescens*, 1660
Vascular plant detritus
bacterial secondary production, 2178
Vegetables
A. hydrophila growth, 2167
spoilage by bacteria, 1677
Vero cell assay
enterotoxin detection, 2141
Vesicular-arbuscular mycorrhizal fungi
detection on roots, 761
growth stimulation, 2320
Viability
Acanthamoeba cysts, 1144
bacteria in situ, 78
effect of starvation-survival, 1122
Giardia cysts, 1223
Vibrio anguillarum
antivibriosis vaccine, 1400
identification in fish, 1907
plasmid and phenotype relationships, 826
survival at different salinities, 1775
Vibrio cholerae
agglutination by oyster serum, 2882
aquatic birds, 95
cryoprotection, 2726
hemagglutination, 2403
intestinal adherence, 2403
non-O1 properties, 2403
seasonal distribution, 1591
survival in a rain forest, 495
zooplankton role in distribution, 1591
Vibrio mimicus
ecology, 2073
Vibrio parahaemolyticus
growth in estuarine water, 1877
growth in rich medium, 1877
Vibrio salmonicida
fish farm sediments, 2815
plasmid profiles, 819
survival at different salinities, 1775
virulence studies, 819
Vibrio spp.
Seto Inland Sea of Japan, 559
toxigenic freshwater isolates, 2613
Vibrio vulnificus
isolation, 3072
membrane fatty acids, 2837
survival in oysters, 3072
virulence, 2837
Vibriosis
vaccine, 1400
Video image analysis
biomass determination, 2762
Virucidal agents
chlorine, 390
ozone, 2949
Volatile metabolites
extraction from lactic acid bacteria, 1617
Volatilization
Hg^{2+} in natural waters, 1196
selenium, 1406

Wastewater ultrafiltration concentrates
detoxification, 401
Water
bacterial plasmid expression, 1860
bacterial starvation-survival, 1860
disinfection, 2949
enumeration of microbes, 2082
fecal coliform detection, 907
fecal coliform enumeration, 1504
injured *E. coli* survival, 1298
selenium volatilization, 1406
total heterotrophic and coliform bacteria, 380
virucidal agent potentiation, 390
Water activity
C. botulinum toxin production, 656
Water potential
cytoplasmic C and N, 1635
R. meliloti response, 2431
yeast γ-decalactone production, 2939
Wetland rice
A. caulinodans survival, 454
Wheat
Fusarium isolates, 2619
Whey permeate
substrate for *K. fragilis*, 573
White rot fungi
extracellular enzyme detection, 1457
ligninolytic activity, 1642
Wine fermentation
population dynamics, 539
Wine making
L. oenos fermentation evaluation, 2010
L. oenos mutants, 751
stuck fermentation, 1560
Wood
degradation, 871, 3131
extracellular enzyme detection, 1457
polysaccharide localization, 2293
pulp brightening by *C. versicolor*, 1147
Woodland rhizobia
Sonoran Desert populations, 3058
Wood-trimmers' disease
A. fumigatus from sawmills, 2856

Xanthobacter spp.
styrene metabolism, 2850
Xanthomonas maltophilia
outer membrane esterase, 233
selective medium, 747
Xenobiotic compounds
degradation, 1578
polycyclic aromatic hydrocarbons, 154
Xenorhabdus luminescens
bioluminescence, 2607
colonial and cellular polymorphism, 1136
growth and luminescence, 2601
Xenorhabdus nematophilus
transformation, 806
Xylanase
B. circulans, 568
detection in decayed wood, 1457
expression in *E. coli*, 568
gene expression in *E. coli*, 893, 1192
intergeneric protoplast fusion hybrid, 2675
production by *N. frontalis*, 1016
R. flavefaciens gene cloning, 1230
xylB
expression in *E. coli*, 306
xylE
detection of pseudomonad, 2537
2,6-Xylenol
metabolism, 2904
Xylose
fermentation by *C. tropicalis*, 1974
uptake by yeasts, 159
D-Xylose
fermentation by *K. pneumoniae*, 1169
metabolism by *P. tannophilus*, 2871
D-Xylose reductase
P. tannophilus mutant, 2877
Xylosidase
xylB expression in *E. coli*, 306

Yeast hulls
wine fermentation, 1560
Yeasts
ethanolic fermentation, 21
growth inhibition, 21
lipid estimation, 3009
preservative resistance, 2995

Zea mays
nitrogen-fixing bacteria, 1748
Zearalenone
biosynthesis, 1955
production by *F. graminearum*, 1315
Zebras
microbial community of helminths, 1178
Zinc
citrate decomposition, 1375
extraction from industrial waste, 1153
F. moniliforme growth, 649
Zooplankton
role in pathogen distribution, 1591